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Industrial FINISHING

W. H. ROHR, Editor P. C. BARDIN, Associate Editor

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JULY, 1949
Vol. XXV, No. 9

★

[illegible] monthly to finishing [illegible] and paint shop foremen, [illegible] superintendents, [illegible] purchasing agents and [illegible] executives of metal-[illegible], woodworking and mis-[illegible] industrial plants [illegible] production cleaning and [illegible] are major operations in [illegible] and products manufacture.

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25 TWENTY-FIFTH YEAR OF PUBLICATION

Seat Cover Fabric. A new type of plastic fabric, developed for the Seat Covering Market is announced by John M. Reeves, President of Reeves Brothers, Inc., New York City.

Known as "Reevon" and made from woven monofilaments of bakelite polyethylene, this new plastic fabric is the first of its kind perfected from this resin. It is well suited as a long wearing seat cover for automobiles, busses, trains, offices, hotels, restaurants, boats and for many indoor and outdoor furniture applications.

Reevon is completely odorless and remains pliable even in extreme cold. It is non-toxic and is resistant to moisture, acids, stains and vermin, and is so light in weight that it floats in water. It resists scuffing and snagging and may be cleaned with soap and a damp cloth.

* * *

Simpler Designs Cut Cost. Francesco Collura, a New York industrial designer, declares that highly competitive conditions are leading many well known manufacturers to redesign their products along simpler lines to reduce production costs. Mr. Collura said further: "The functional approach to industrial design is making rapid gains in industry. Heretofore a large portion of industrial design was restyling for improvement of appearance. Today many companies are asking how their products can be redesigned to cut manufacturing costs."

Regardless of what the product may be, it is a high potential for simplification either in size, shape or working parts. Appearance need not be sacrificed through the simplifying process, but rather it may be improved. Too many products have remained practically unchanged through the years. It is high time that some reputable designer make an intensive study of the product. There is always room for improvement.

* * *

A Big Fair in 1950 is being planned to mark the 150th birthday of the District of Columbia. The Freedom Fair, as it will be known, will be held in the National Capitol on a 75-acre tract in West Potomac Park near the Washington monument. The exposition will start April 15, 1950, and run for seven months.

Present plans include halls for exhibits from the 48 states, government buildings and a Free Enterprise building for industrial exhibits.

* * *

Buying Habits Changed. The law of supply and demand has not been repealed. It is in full operation, but supply and especially capacity to supply, have overtaken and passed the demand for certain kinds of durable goods. This situation has been further aggravated by a change in the buying pattern all along the line. It is just human nature to buy in advance of requirements in times of scarcity and on a rising market. Conversely, we delay until forced by necessity to buy on a falling market.

(Continued on page 7)

This change in buying habits, in itself may well account for much of the current drop in demand for certain durable products rather than because of actual inability to purchase goods. However, the lag in buying due to a change in buying habits, can accentuate the lack of demand for only a limited length of time; then the actual current demand is reestablished. Of course, we may expect that distressed merchandise, at manufacturer or retail levels — is bound to make the going tougher and retard the development of a normal demand.—*Mahogany Association.*

* * *

An Electronic Towel for use in all types of washrooms, is capable of drying and sanitizing hands electronically in less than 30 seconds.

Attached to any electrical circuit and no bigger than an average table radio and attached to any wall, this towel also releases an ozonating action that deodorizes the surrounding area.

The dryer performs in the following manner: Wet hands, placed into a horizontal opening, cut a beam of light which sets off infra-red heating and ultra-violet sanitizing. Simultaneously, a high speed impeller type of blower forces a blast of air to pass over the hands that causes drying to take place by evaporation. After the hands have been dried and removed, the machine automatically shuts off and is ready for the next drying operation.

* * *

"Sandwich" Walls, consisting of a layer of Foamglas insulation ingeniously held between two layers of concrete in panel form, will be used in the high alpha cellulose pulp plant of Columbia Cellulose Co., Ltd., which

(Continued on page 98)

BE SURE IT'S

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THE NON-BURNING REMOVER

Now you can strip any finish—without danger of fire! SAF-TE Non-Burning Remover makes this possible. Approved by the U. S. Dept. of Commerce as "ship stores", SAF-TE simply will not burn! Does a top-flight job—reduces the finish to a soft, sludgy mass that peels off easily, cleanly. Saves time and work, too—*requires no afterwash!*

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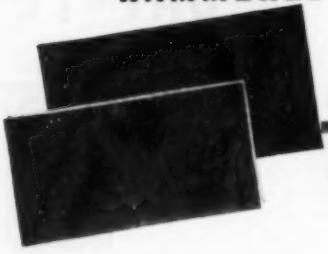

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ONE OPERATION

1/3 LESS COST

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An attention-arousing finish on your product better reflects its inherent qualities . . . gives it individuality and sales appeal.

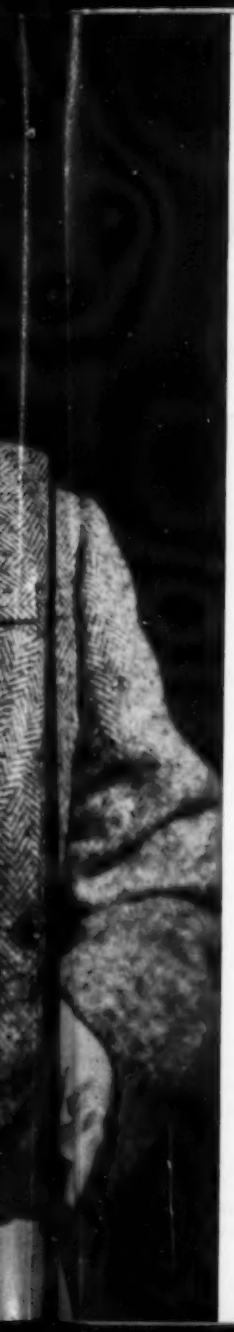
If you feel the coating you are presently using doesn't do just that . . . let our Creative Studio show you how it is possible to make your merchandise more eye-catching than ever.

Our staff will approach your problem with a clear, definite purpose in mind . . . create an appealing finish that fills specific needs. Reputable firms are invited to take advantage of our service at no cost or obligation. May we hear from you?

No Tampering with Quality

ROCKFORD VARNISH *Company*
ROCKFORD, ILLINOIS

Manufacturers of Protective and Decorative Coatings



HEY!

..what kind of game IS THIS?

It's a losing game if you try to *guess* the right type of lacquer, enamel or undercoat to best suit your product. But one thing is certain . . . you'll never gamble if you rely upon the advice of an R-M industrial finishing representative. Call upon him. Especially are we anxious to hear from you if yours is a T-O-U-G-H problem.

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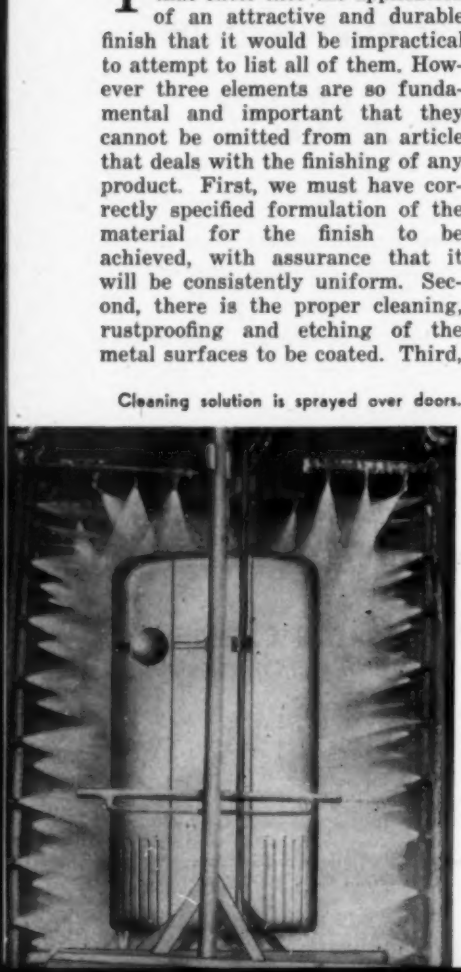
how

KELVINATOR REFRIGERATORS

THERE ARE SO many factors that enter into the application of an attractive and durable finish that it would be impractical to attempt to list all of them. However three elements are so fundamental and important that they cannot be omitted from an article that deals with the finishing of any product. First, we must have correctly specified formulation of the material for the finish to be achieved, with assurance that it will be consistently uniform. Second, there is the proper cleaning, rustproofing and etching of the metal surfaces to be coated. Third, we must insist upon uniformity of application and film thickness.

Our quality control laboratory assures uniformity of the specified materials; constant supervision provides proper surface preparation; and, to reduce the variables of human nature, automatic spray equipment, carefully controlled, produces a uniform film thickness of 2-mils plus, over every square inch of refrigerator surface. The result is a consistently high quality finish.

Cleaning solution is sprayed over doors.



Surface Cleaning And Rustproofing

Refrigerator cabinets, doors and hidden hardware all go through the metal washer on a conveyor traveling at a speed of 20-ft. per minute. In the washer, solutions are sprayed on the parts from four sides at a pressure of 20-lbs. In the first stage, an alkali cleaner with triethanolamine and kerosene emulsion is sprayed on at a temperature of 165° to 170° F. This is followed by two hot water rinses at 160° F. Next, a rustproofing solution is sprayed on at 160° F.; this is followed by a cold water rinse. In the last stage, a chromic-phosphoric acid solution is applied at 155° to 160° F. This completes the surface preparation.

Parts pass through a dry-off oven followed by a hand blow-off to make sure that no moisture remains in channels, grooves, etc. Then

[PAGE 22]

ARE ENAMELED *WHITE* . . . .

about five minutes of travel time allows the parts to cool adequately.

White Coats Applied by Automatic Spray

Just before refrigerator cabinet shells and doors enter the pressurized spray room they pass through a short infra-red tunnel which heats the metal to 110° F. This pre-heating of the metal, coupled with carefully controlled viscosity of the enamel and the correct atomizing and fluid pressures on the automatic spray equipment, forms an important part of the system by which we get a uniform film thickness.

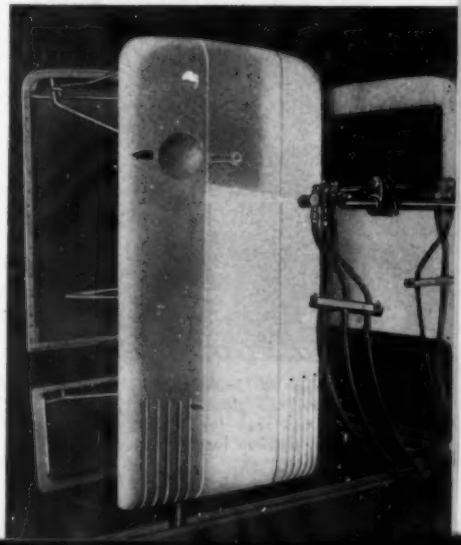
Just inside the spray room, two hand spray operators, one on each side of the conveyor, spray the entire lower section and feet of cabinet shells and the lower inside surface of doors. Next, two hand spray operators coat the back edges of cabinet shells and all face edges of doors. Cabinets and doors then enter the first of two reversed water-curtain spray booths. The first booth has a vertical, reciprocating, automatic spray unit which coats one side, and one fixed gun at floor level to coat the bottom section.

In the second booth, which is adjacent to the first, an identical automatic unit coats the other side. Each of these units has three spray guns; at the top of the stroke, some overspray is deposited on the top of the cabinet shell. To even out this coating on the tops (from six spray guns) and to complete the top finish, cabinets pass under an overhead, horizontal, reciprocating spray gun.

BY JOHN C. PIETRZYK

Lastly, a hand spray operator gives all edges of both cabinets and doors a final reinforcing coat just before they pass out of the spray room. Frequent tests prove that by this method of spraying,

Spraying refrigerator doors automatically.



the entire surface of both cabinets and doors have a film thickness of 2-mils plus.

Before going into details on materials, viscosities, atomizing and fluid pressures of the automatic spray equipment, I shall go ahead with the sequence of finishing operations.

This view of doors passing through infra-red pre-heat tunnel shows type of carrier truck and rack for holding two doors in correct position for finishing.

Pre-heating; Baking; Clean Filtered Air

Upon leaving the spray room, units travel for about ten minutes to allow proper flow-out of the coating before they enter the pre-heat oven. In this oven 100% fresh filtered air is used. The first section is kept at a heat of 150° F. In the second section the temperature is 255° to 265° F. Parts remain in the pre-heat oven 15 minutes. Then they enter the direct gas-fired bake oven which is separate from the pre-heat oven. Here the finish is baked for 30 minutes at 300° F. In the bake oven 29,000-c.f.m. of air is recirculated with 3000-c.f.m. of fresh filtered air added.

Just beyond the exit end of the bake oven, parts enter the cooling tunnel where air at room temperature is blown over them for six minutes. Continuing on the same conveyor trucks, the cabinets and doors are inspected before they go on to the assembly lines.

Mixing and Supply Tanks; Solvents; Paint Delivery

The central paint supply room is located in a separate building and contains four 150-gallon mixing tanks, four 150-gallon supply tanks for white enamel and one 150-gallon tank for black japan. Three 10,000-gallon tanks, located above the ground, are used for solvents. Solvents are pumped through metering valves into the mixing tanks. Paint is circulated through filters to all spray booths on the 8 to 10-cu. ft. refrigerator line described here, and to the 4 to 6-cu. ft. refrigerator line which is an entirely separate unit. *(To page 26)*

Have you a metal-cleaning "tough nut" . . . to crack?

Is it the removal of:

- oils or greases?
- buffing compound residues?
- pigmented drawing compounds?
- lime scale or mill scale?
- carbon smuts?
- soldering flux?
- tarnish or rust?
- rust preventives?

Or is it preparation for:

- electroplating or porcelain enameling?
- painting or lacquering?
- tinning or galvanizing?
- anodizing or welding?

When these things give you headaches, please remember that Oakite has an efficient method for every metal-cleaning job.

FREE There is no charge for Oakite advisory service on metal cleaning. Just write to Oakite Products, Inc., 32F Thames St., New York 6, N. Y.

OAKITE

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INDUSTRIAL CLEANING MATERIALS • METHODS • SERVICE

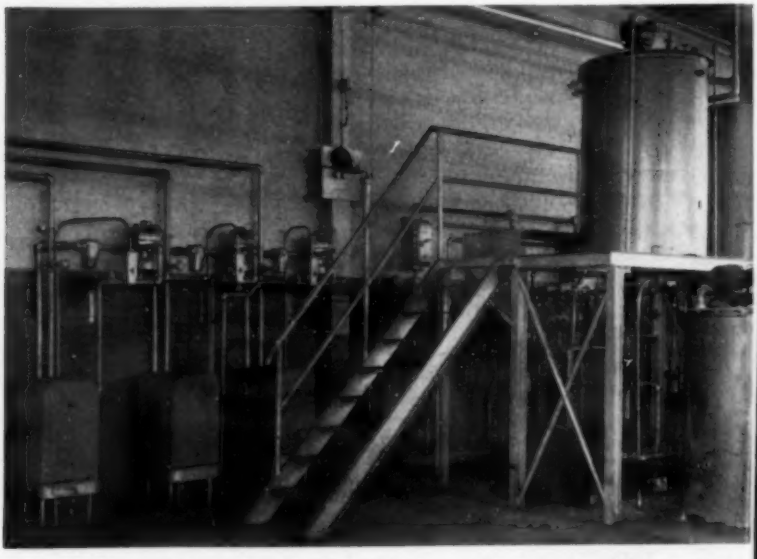
Technical Service Representatives in Principal Cities of U. S. & Canada

Our greatest production, of course, is on the 8 to 10-cu. ft. refrigerators. An adequate rack storage for drums is also located in this room, providing protection against the cold and snows of winter and summer's hot sun. Even small things like this are important factors in the successful application of paint to quality products.

Automatic Spraying Controlled by Timer

To function successfully and economically, the speed of the conveyor must be synchronized with the strokes of reciprocating spray guns and the length of the stroke. Naturally the direction of spray is highly important. The speed of our conveyor is 18½-ft. per minute, with carrier trucks spaced on 4-ft. centers. The sequence of loading this conveyor is two cabinet shells, then two doors, followed by two shells and so on. The automatic units are controlled by a precision timer. All spray guns are automatically cut off in the event the conveyor is stopped.

Each vertical automatic unit consists of one fixed floor level gun, which remains stationary at all times, and a reciprocating frame on which three spray guns are mounted. These three guns are arranged in the form or a triangle, with two forward guns and one back gun. The frame operates at 45 strokes per minute. *(To page 28)*



Through three metering valves in paint supply room, solvents are piped from storage.

LOOK TO

Watson-Standard

FOR THE UNIQUE IN *Industrial Finishes*

Many finishes of unequaled quality are now available to the metal decorating industry because of many years of experience and continuous research of The Watson-Standard Company.

One of the newest of these finishes is 11-156, a white vinyl. This outstanding coating possesses excellent gloss, chemical resistance plus superior covering and fabricating qualities. Users have been very enthusiastic over it.

We'll be glad to help you with your finishing problems without obligation. Write today for complete information.

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Prescription Finishes
Give us your coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

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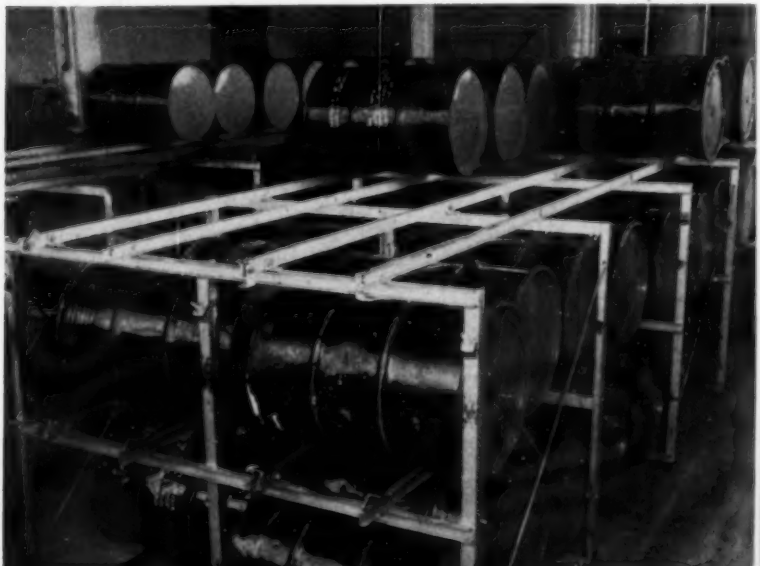
The overhead horizontal unit for spraying tops of shells consists of a reciprocating frame with one gun mounted on it. This frame operates at 46 strokes per minute. This gun has a different size orifice from those on the vertical units.

The coating material we use is a urea-formaldehyde-base synthetic enamel. Viscosities are measured with a No. 4 Ford cup at a temperature of 78° F.

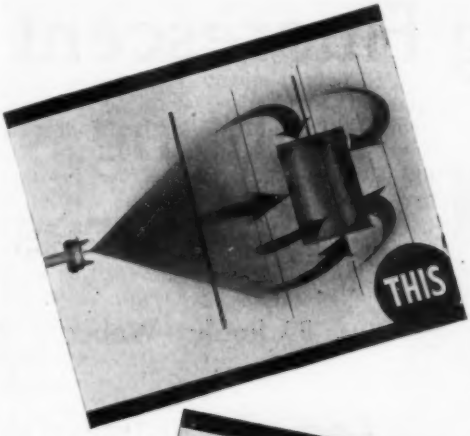
The fixed floor guns spray material at a viscosity of 35 seconds. The atomizing pressure is 65-lbs., and the fluid pressure is 6-lbs. per square inch. The two head guns spray material at a viscosity of 35 seconds; atomizing pressure is 85-lbs., and fluid pressure is 24-lbs. The back spray gun sprays material at a viscosity of 40 seconds; atomizing pressure is 85-lbs. and fluid pressure is 28-lbs.

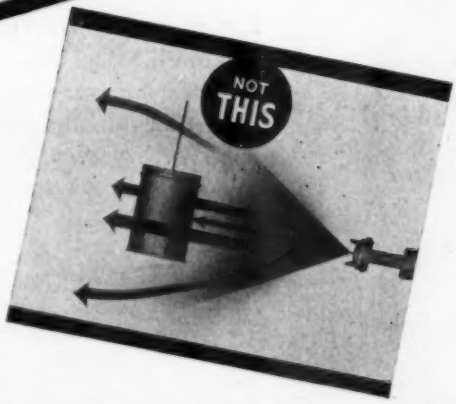
On the overhead horizontal unit the gun sprays material at a viscosity of 40 seconds; atomizing pressure is 85-lbs. and the fluid pressure is 22-lbs. These pressures have worked out satisfactorily.

All viscosities are absolutely controlled and maintained at the proper levels. Mechanical application of enamel under absolutely controlled conditions, plus reinforcement hand spraying of feet, lower and top sections and all edges, insures a uniform film thickness. [END]



Storage of material drums in central paint supply room is neat, orderly and convenient.





STAY COMPETITIVE ON *Painting Costs . . .*

Look to Ransburg for help in lowering your manufacturing costs. Discover how automatic Electro-Spray creates worthwhile savings in painting cost—savings that will permit lowering of prices to help overcome sales resistance in today's competitive markets.

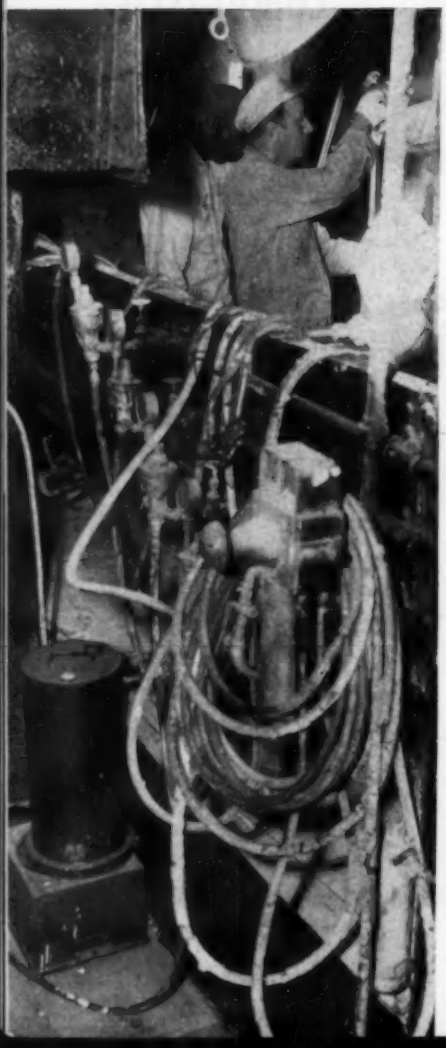
Add up just three of your finishing costs: direct labor, coating materials, and booth clean-up. Now deduct 40%! Would that be a worthwhile saving?

Savings of 40 to 60% in paint alone are average with Electro-Spray.

Chances are that a product like yours is now being finished with the Ransburg process. If not, we shall be glad to demonstrate how YOU CAN BE THE FIRST to gain a finishing-cost edge of 40 per cent or more for your particular product or products. Please give us complete information in your letter of inquiry.

Ransburg Electro-Coating Corp.
Indianapolis 7, Indiana

Finishing Fluorescent Lighting Fixtures



By Robert Weber

Finishing Superintendent of Mitchell Mfg. Co., describes the cleaning, spraying, baking setup on metal light fixtures, and explains the advantage in applying hot synthetic enamel.

FLUORESCENT lighting fixtures consist of a body, a reflector and a louver. The entire fixture requires a finish coat for appearance, for protection against rust, and to provide for easy cleaning. The reflector and louver must register a high degree of reflectivity, and they must maintain this high efficiency after many washings.

Correct formulation of the coating material is of prime importance. Adequate build of finish is

Spraying white synthetic enamel on light fixtures. The enamel passes through the paint heater (see lower left) which is set at 175° F. before it reaches the spray gun.

also essential. In meeting these specific requirements for quality, economy of finishing must not be overlooked. Since formulation of the enamel is controlled by our supplier, the question resolves itself into how to deposit a satisfactory quantity of solids on the metal surface without runs or fatty edges appearing and to avoid, if possible, multiple coats and bakings. We have found the answer in the application of heated synthetic enamel.

How These Parts Are Cleaned and Painted

Entering the finisihng room from the fabrication department, fixture parts go through a 2-stage washer. First they are sprayed with a hot alkali solution at 160° F.; then follows a hot water rinse at 150° F. Next the washed parts pass through a dry-off section which is maintained at 200° F. The time in the washer and dry-off oven is nine minutes.

After a 5-minute cooling period the metal parts are transferred to an overhead monorail conveyor which has hangers spaced at 12-in. centers. This conveyor operates at a speed of 10-ft. per minute.

Metal parts enter the spray booth where the entire outside surfaces of all parts, excepting the reflectors, are given a double wet coat of white alkyd-resin base enamel.

(Continued on page 32)

View inside oven in which the finish on metal parts is cured by infra-red gas burners.

The inside surfaces of these parts receive a single coat of this same material.

Procedure on the reflectors is reversed for obvious reasons. The inside surfaces of reflectors receive the double wet coat, and the outside surfaces get the single coat. A flash (air drying) period of five minutes is allowed before the parts, traveling by the overhead conveyor, enter the infra-red, gas-fired oven where the finish is cured for six minutes at 350° F. Parts cool as they continue on to the assembly department.

Our Paint Heater; How We Use It; Why We Like It

The finishing procedure just described is not unlike that found in many other metal finishing rooms, and it is not unlike the system we followed before we installed paint heaters in the line between the supply pipe outlet (central paint system) and the spray gun. But the results are different.

A small hose connects the paint heater to the supply pipe outlet and a hose of the same size is used between the paint heater and the spray gun. The white alkyd resin enamel is mixed in the central paint supply room to a viscosity of 33 seconds at 70° F., No. 4 Ford cup; and it enters the paint heater at this viscosity. The thermostatic control on the paint heater is set at 175° F. Tests on the outfeed end of the paint heater indicate a viscosity of 22 seconds. The temperature loss between the heater and the spray gun will vary from as little as 5° to 15° F., depending upon the season of the year and the outside temperature. The heated enamel is sprayed at an atomizing pressure of 75-lbs. and a fluid pressure of 25-lbs.

In the application of heated synthetic enamel, we find that 50% less solvents are required, therefore less volatile solvents have to be evaporated in the oven. More solids are deposited on the surface with fewer strokes of the spray gun, without danger of runs or fatty edges. The double wet coat produces a film thickness of 1½ mils plus. Tests show reflectivity has increased about two points.

G. B. Work to Head Zapon

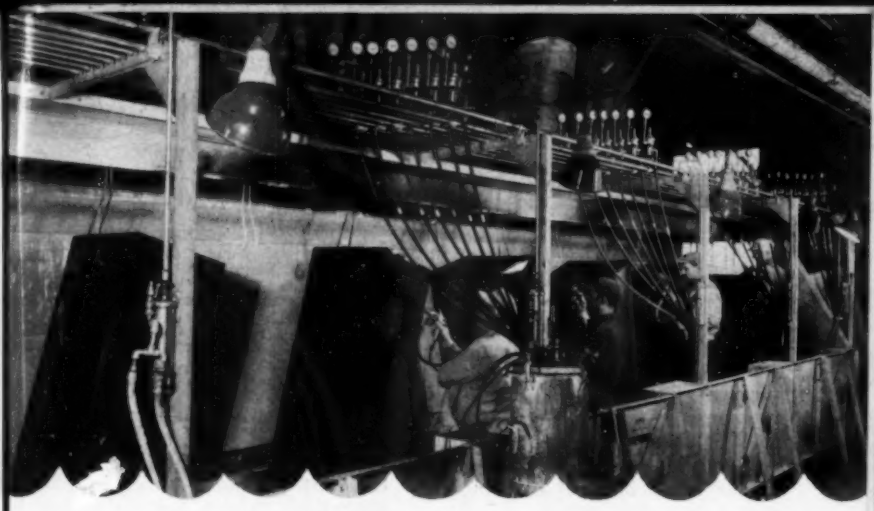
G. B. Work has been appointed General Manager of the Industrial Finishes Department of the Atlas Powder Co., succeeding E. H. Bucy, who has been transferred to the general office of the company at Wilmington, Del., for special duties.

Mr. Work will have full managerial authority over the manufacturing, selling and technical operations of the department, including both the Stamford, Conn. and North Chicago, Ill. Division. He will make his headquarters at Stamford. This department was formerly known as the Zapon Division, producers of finishes for manufactured products of all kinds.

Mr. Work was previously Assistant General Manager of the Industrial Finishes Department. Prior to coming with Atlas he was with a Cleveland, Ohio, manufacturer, as Industrial Sales Manager of their Finishes Division at Reading, Penna.

Mr. Don Metz will continue in his present managerial capacity in the Zapon plant at Stamford, and Mr. C. A. Apeland will continue the same duties at North Chicago.

G. B. Work becomes General Manager of Industrial Finishes Dept. of the Atlas Powder Company



Water-Wash SPRAY BOOTHS and *W-W* COMPOUNDS

By WILLIAM BEACHAM

SEVERAL manufacturers have asked me to recommend "the best type of water-wash spray booth on the market"; they were dissatisfied with the booths they are now using. Calling on several of these people and digging deeper into their problems I found that they were using well-known spray booths made by reputable manufacturers.

In a typical case I found a firm was using a spray booth made by, we will say Blank Co., but had heard that the spray booth made by Dash Co. is much better. Another concern I called on was using Dash Co.'s spray booths and had heard that the Blank booth is best.

Mistaken Ideas About Booths and Compounds

Back of some of this discontent, I have found, are a few salesmen of water-wash operating compounds. A salesman informs one company, who uses a Blank Co. spray booth, that his compound works very well in a Dash Co. booth, therefore it must be the

spray booth that is wrong and, "confidentially the Blank Co. is having the same trouble on all of their installations".

This is an unfair method of doing business, but I suppose these salesmen have to make a living. I have found that some of these little trouble makers are selling soap powders and cleaning agents, and they carry one type of water-wash compound as a side line. They realize that selling water-wash compound alone will not pay their grocer or butcher, but as a side line it is nice pocket money.

You may think it is easy to check on the salesman's story, so you telephone this other company that uses a different spray booth. When they assure you that they are having no trouble at all, perhaps you assume that your spray booth is actually at fault. But, did you ask what type of paint the company is using, which is the "heart of the trouble"?

Some paints on the market do not require operating compound. Some require a compound to "burn" or encrust the sludge; others need a water softening action; still others need a hardening action; and there is also on the market a paint so "heavy" that it requires something to increase the viscosity of the water. We must not blame the paint if the spray booth does not work as well as we think it should; the paint has been made for a specific job and it is doing that job; it all depends upon whose viewpoint sways us.

While I was calling on a manufacturing plant recently, an equipment salesman remarked: "Gee, that is lousy paint they are using". When I got into the plant I expected to see a very poor finish or something difficult to apply, but to my surprise the finish on those products was perfect. In fact, I noticed that some pieces ready to be painted had pockets of water collected in corners that didn't show, but after the entire article had been sprayed, the paint had cut through the water and "tied itself" to the steel. The superintendent told me they could not remove the paint from their rejects by simply dipping them into a hot strip tank; their few rejects had to be boiled overnight to remove the paint.

Real Cause of Trouble

Their water-wash spray booth was in a mess, with a paint build-up of about 2-in. thick back of the water curtain. The equipment salesman's remark about their paint being lousy was wrong. Yes, it had left the spray booth in a mess, but paint that will "walk through water and tie itself to the steel" is, in my estimation, an excellent paint; and the finished products, after being submitted to gruelling tests, proved that it is excellent paint.

When things do not work out perfectly to our own or to some salesman's personal advantage we must not always blame the paint or the spray booth. The same spray booth will work with a different paint. Perhaps we can't blame the compound salesman too much because he doesn't understand either the paint business or the workings of modern water-wash spray booths.

Then who is to blame? I think I can answer this question by asking, "Did you inform the manu-

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THE BEST IN PRODUCT FINISHES FOR THE BEST IN PRODUCTS
HILO No. 2463
ALKALI-RESISTANT WHITE
sets a new high in alkali resistance!
Soaps and detergents take their toll of ordinary white enamels and the demands for increased alkali resistance have become more and more exacting.
Manufacturers of home washing machines, bathroom fixtures, refrigerators, kitchen equipment ask for the best—the greatest possible alkali resistance.
Today in Hilo No. 2463 Alkali Resistance White these manufacturers have an enamel which stands up under standard soap solutions more than three times as long as what was considered good less than a year ago.
This Hilo White has established a new high in satisfaction—adhesion, good hiding, high gloss, toughness and extreme resistance to spilled soap water in home washing.
Just say you'll test Hilo #2463 Alkali Resistant White—we'll send a trial lot at no charge and transportation paid.
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facturer of your spray booth what type of paint was to be used in this booth?" No? Then who is to blame?

Booths are Made to Work; Also Paints; Compounds

One large manufacturer of spray booths places nozzles in the booth to atomize the water and wash the paint particles out of the air. Another large manufacturer supplies several distinct washes without nozzles. There are other smaller concerns each with a different system which they have found will work —but that was in the past when all paints followed along the same general trend.

There are so many different types of paints on the market today that the spray booth manufacturers can hardly keep up with them. If we only stop to think, we will realize that the principle and purpose of the water wash spray booth is to wash the over-spray out of the air with water, which is what all water-wash spray booths are doing.

The next problem then is a chemical one. Many of the spray equipment manufacturers have laboratories in which chemists try to solve this chemical problem which changes with each customer—and perhaps with each paint. They do not try to sell one cheap compound as a cure-all. They test your material and advise you what to use. The rest is up to you.

Some of the larger manufacturers of compounds for water wash spray booths have laboratory technicians and service men who will come in, analyze your problem—according to the kind of paint and type of spray booth you are using —and supply regular or special compounds and prescribe methods which, if properly used, will clear up your trouble and give you effective and economical operation.

Don't be too hasty in condemning a material or piece of equipment. *You may not have the right workable combination,* or you may not be using the materials or the equipment properly. Find out. Call in someone who is dependable and who knows something about all of the factors that may contribute to your difficulties.

When you hear that old story to the effect that "the spray booth is no good", please remember that the manufacturer of your spray booth has built his business up by making a well engineered high quality product which is acceptable in the finishing field; if he were manufacturing an inferior booth, how long would he stay in business?

Special Compounds for Aluminum Paint

Added note by Author: Manufacturers who use aluminum paint in water wash spray booths, be careful of fire! You are using water wash compound to remove the stickiness and to float your overspray. Your overspray may be from 35% to 70%, depending upon the training and skill of your operators. The solids in your paint are pure aluminum. The liquids are inflammable.

The operating compound, unless especially formulated for aluminum, is a mixture of alkalis. Alkalis corrode and destroy or burn up the aluminum. The floating overspray is being worked on from the bottom, by the alkalis in the water,

destroying the aluminum powder. This fast corroding action produces a decided heat within the floating overspray, which is also loaded with inflammable solvent. I will leave the rest to your imagination.

The insurance inspector does not know what chemical action is brewing inside your water wash booth, therefore he cannot warn you. A fire may not happen for ten years, but then again it may happen any time soon. It is better to be safe than sorry.

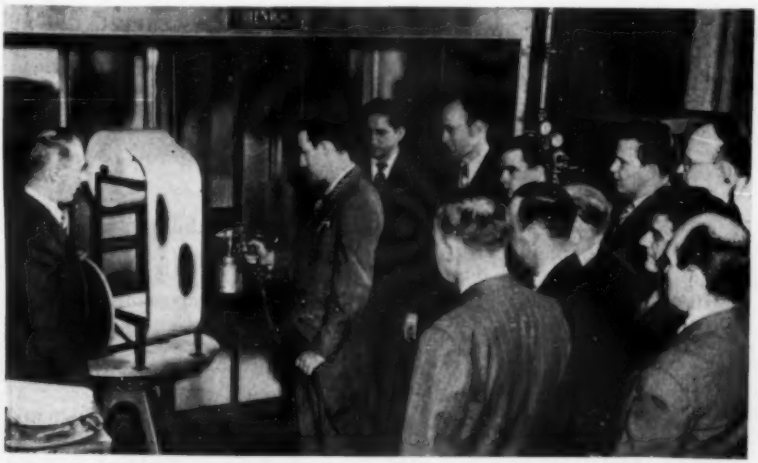
Spray Painting School in Chicago

Educating foremen, supervisors, salesmen, jobbers, and business executives instead of the workmen, in spray painting methods and equipment, is the unique feature of a Spray Painting Equipment School recently opened by the Binks Mfg. Co., in Chicago, Ill. Reason for this departure from the normal pattern of industrial training classes is, that the real problems of spray finishing are faced by factory executives and managers, salesmen, paint manufacturers. It is this group that must recommend and provide the equipment, establish methods and select the type of finish that will best enhance the selling possibilities or physical protection of the finished product.

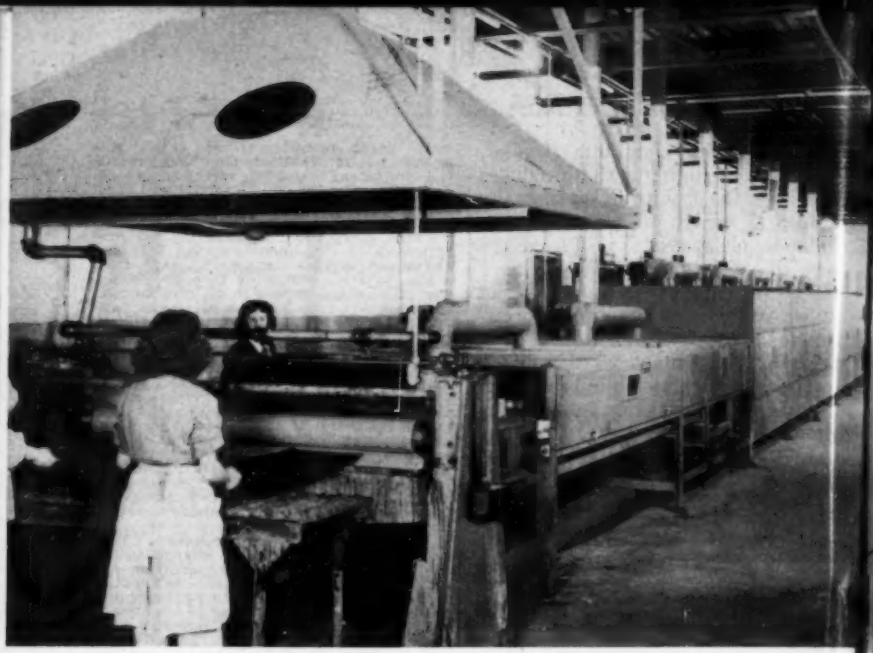
These classes are held during the first full week of each month, except July and December, at the company's plant from 9 a.m. to 4 p.m., Monday through Friday. The classes are limited to 12 in order that the members may get the maximum benefit from personal instruction and have plenty of discussion time.

William Beacham, a nationally known paint chemist, spray painting authority and writer on industrial finishing subjects, is in charge of the classes. Mr. Beacham's wide experience in the field clears up many of the finishing problems and questions of members of his classes. In addition to conducting the Spray Painting Equipment School, Mr. Beacham is in charge of Binks laboratory, which provides free consultation and advice to users of spray finishing methods throughout the country.

Binks Spray Painting Equipment Classes are conducted without charge to the individual, except for transportation and expenses while in Chicago. Application from individuals wishing to attend should be made two weeks or more in advance so that appropriate reservations for hotel and other accommodations can be provided. Write Mr. E. F. Watts, Binks Mfg. Co., 3122 Carroll Ave., Chicago 12, Ill.



A member of the Binks Spray Painting Equipment school adjusts his spray gun to produce a perfect spray pattern. Then he learns how to spray a full even coat of paint. Each member is provided with a spray gun, which he takes apart, reassembles and demonstrates.



Roller coater and infra-red oven are aligned in tandem and served by an exhaust system.

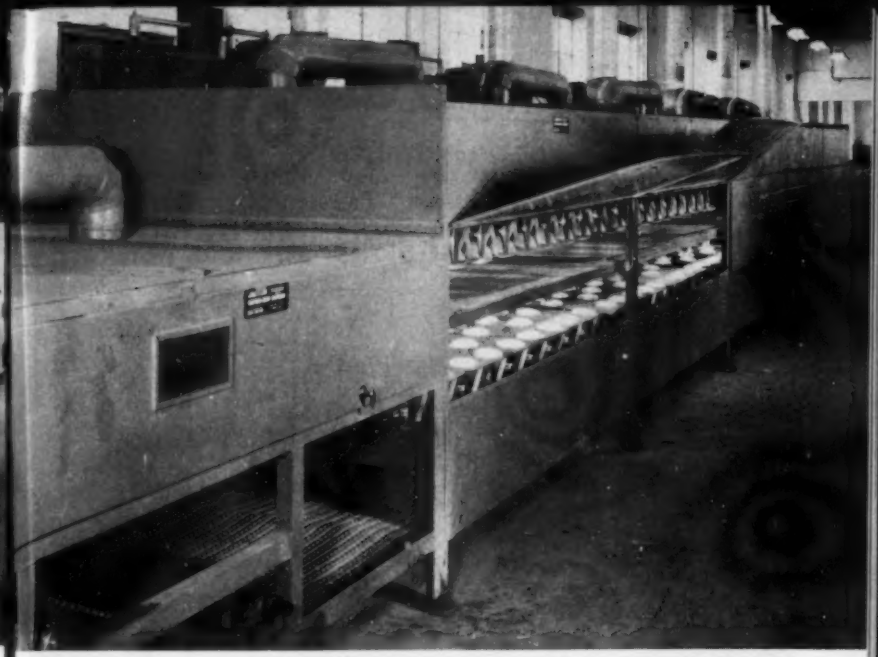
Finishing

MOST OF YOU are familiar with the fiber board panels used inside automobiles—in front under the dashboard, the high shelf back of the rear seat, in glove compartments and trunk linings. These panels are also used in truck cabs. Most of the panels are made of chemically treated black fiber board which is finished in colors that match or blend with the upholstery or the interior color scheme of the car or truck.

Panels are Embossed and Roller Coated

Sheets of this fiber board are run through embossing rollers to imprint the particular leather design desired. Next, these sheets of fiber board are run through a roller coater which applies the color demanded by the automobile manufacturer's specifications. We use only specially formulated pigmented paper-coating lacquer. It is impossible to give you a definite set

[PAGE 42]



Close-up of 3-section infra-red oven. Photographs courtesy of Jensen Specialities, Inc.

Fiber Auto Panels

By E. G. BARBER, Vice President, Diversified Products Co.

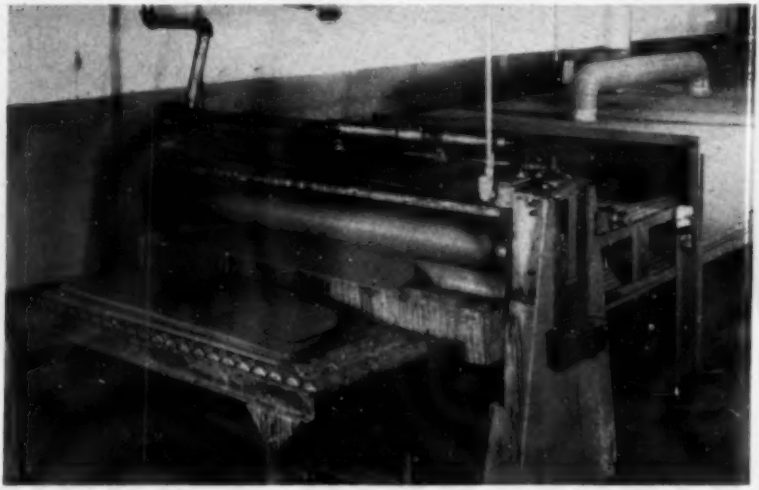
of viscosities of various colors applied in the roller coater because of differences in the leather design and differences in the temperature and humidity of the air at the time the material is coated. We have found it best to run through several test panels and adjust the viscosity and film thickness of material to give us proper coverage and still not obscure the leather design by any filling or clogging of indented or embossed pattern.

Finish is Forced Dried in Infra-Red Oven

At the outfeed end of the roller coater a horizontal, metal belt conveyor 72-in. wide carries the coated fiber sheets through an infra-red oven. This belt is operated through a variable-speed drive with a range of from 30-ft. to 75-ft. per minute. It usually travels 60-ft. per minute.

The infra-red oven is divided into three sections. The first section, just back of the roller coater, con-

tains no lamps; it has an adequate exhaust system to carry off any solvent fumes. The next division contains five sections, top and bottom, of infra-red lamps for a total of 732. The first three bottom sections and the first two top sections (lamp sections) are fitted with 250-watt lamps. All other lamps have a 125-watt rating. *(To page 46)*



Close-up of roller coater which applies lacquer. Photo, courtesy Jensen Specialties, Inc.

Outfeed end of oven. Panels cool as they travel. Since this photograph was taken, two large fans have been installed directly over the belt. Photo, Jensen Specialties, Inc.

YOU'RE ALWAYS IN FIRST PLACE

....WHEN YOU FINISH WITH UNITED

Quick Baking
Free Flowing
Rapid Drying
Hard, Tough Finishes in
Gloss, Satin, or Dull . . . . . .
Uniform in Quality . . . . . .
Proven By Performance . . .

What's YOUR Problem?

Send requirements to us. We'll find the right finish and pass along a generous working sample to you. No obligation!

"FIRST WITH THE FINISH"

United Lacquer Mfg. Corp.

General Office, Laboratory, Factory: LINDEN 3, NEW JERSEY
New England Plant: EVERETT, MASSACHUSETTS

UNITED
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LACQUERS
THINNERS
SYNTHETICS
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SPECIAL COATINGS

The third section of the oven contains no lamps—only an exhaust which starts the cooling of panels. Just outside the exit end of the infra-red oven, two large fans complete the cooling of panels as the panels travel to the end of the belt conveyor. After being coated the panels are die cut to size and shape and packed for shipment.

Clean Equipment is Efficient, Economical

As you well know, satisfactory finishing results can only be obtained with clean equipment. The flexible metal belt conveyor must be cleaned whenever the color is changed. This is done by holding a bronze bar against the belt while it is in motion. The scraping action removes dried paint from the metal surface.

All lower section infra-red lamps are cleaned every ten working days; upper section lamps are cleaned every two weeks. With the exhaust system operating at full capacity and the conveyor belt shut down, workmen who wear respirators blow any dust off the lamps with an air gun.

Particles of paint or solvent are scraped off the lamps. Finally each lamp is wiped with a cloth saturated with solvent. The cleaning of infra-red lamps is done after regular production has stopped. We have found that a trained cleaning crew is more efficient and that better results are obtained than by merely asking several operators to do this important work.

A portable power paint mixer that clamps on the edge of a container of material is always useful.

Tiny Blisters in Painted Metal

IN FINISHING aluminum castings oil trapped in the pores of the metal cannot be removed by ordinary cleaning methods. Cleaning with solvents, a vapor degreaser or a metal washer will remove all surface oil, grease and finger prints, but any oil in the pores will remain there until it is forced out in the baking oven, after the piece has been coated. This causes tiny blisters and a defective finish.

Comparable to this is any metal product that has been zinc plated before finishing, for rust preventive purposes. Hydrogen gas is trapped in the pores of the metal and can only be released in the baking oven. It too causes tiny blisters in the finished surface.

Both conditions can be eliminated by running the pieces through an oven at temperatures of 400° to 600° F. for several minutes. In the first instance the oven is generally known as a burn-off oven, and in the second, a hydrogen relief oven.

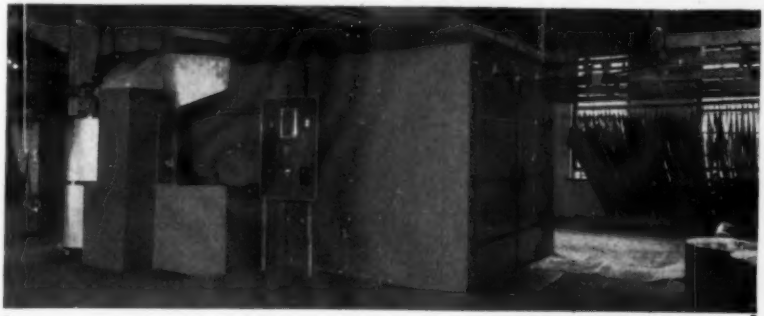
"Magnoflake" Metal Powders

Magna Mfg. Co., Inc., 444 Madison Ave., New York 22, N.Y., manufacturer of Magnaflake metal powders and pastes, has appointed Dowdy Brothers, 33rd & Arch Streets, Philadelphia 4, Penna., as its representatives in the Philadelphia area.

Atlas Appoints Blacketer as Customer Service Manager

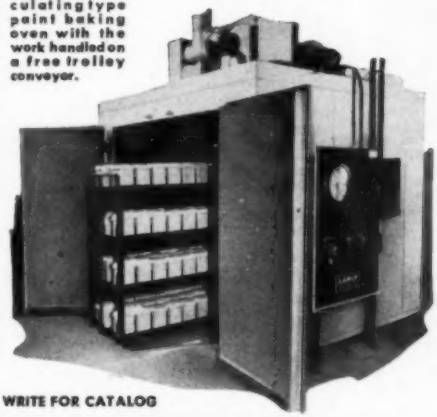
Charles W. Blacketer has been appointed to the new post of Manager of Customer Service for the Stamford, Conn. branch of the Atlas Powder Co.'s Industrial Finishes Department.

Mr. Blacketer was formerly Chief Chemist for a manufacturer of finishes in Detroit and had previously been with the development and research laboratories of another firm for 13 years in Chicago.



Satisfied Users All KNOW THAT . . .

A gas-fired recirculating type paint baking oven with the work handled on a free trolley conveyor.



WRITE FOR CATALOG

An electrically heated, truck type, finish baking oven.

LANLY OVENS *insure* GREATER PRODUCTION AND LOWER COSTS

Whether your finishing processes require large oven installations for volume production with conveyor systems or small ovens with hand truck facilities, for lesser volume finishing, LANLY consultation and recommendations are available without obligation.

CONSULT US REGARDING • HEAT TREATING OVENS • CORE OVENS
PAINT OVENS • RUBBER CURING OVENS • AIR HEATERS • ETC.

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INDUSTRIAL OVENS

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Graining Dashboards

We would appreciate receiving literature on material required for refinishing and graining dashboards and mouldings in automobiles. Also, please advise us what equipment is necessary in order to do this job.—C.H.F.Co.

In a letter we are referring you to manufacturers of graining equipment and supplies.—Ed.

Padding Lacquers

We are interested in an article which appeared in one of your last year's issues on Padding Lacquers, and would be glad if you would send us the magazine or tear sheets of same. We are not sure of the date it was issued but believe, upon checking your magazine index, you will have no difficulty in locating the article in question.—I. V. & Co.

We don't find the article, but in a letter we are naming concerns who can supply these materials along with complete information about how to use them.—Ed.

Want Sample of "Lacelon"

I would like to know where to obtain samples of "Lacelon", as mentioned in Random Comment of May issue, page 4. I am interested in the material as a covering for hand made lamp shades.—T.J.

Our reference note on this indicates that it is a product of Minnesota Mining & Mfg. Co., St. Paul, Minn. We suggest that you write them about it.—Ed.

Where's Liquafill Mfg. Co.?

We came across a question and several answers in May issue about finishing mahogany. This brings up a problem which we have had for some time, and mentions a definite solution for it. The answer in which we are interested is signed by the Liquafill Mfg. Co., on page 96. We would appreciate their full address so that we may contact them with regard to our needs in this matter.—D.E. Inc.

It's 823 Richard St., Dayton 3, Ohio.—Ed.

Industrial Vacuum Cleaners

Can you give us the names of firms who manufacture vacuum cleaning equipment suitable for use in our finishing department. We would, of course, require an explosion-proof outfit of sufficient power to remove sawdust from our machines as well as the dust in our finishing rooms.—T. Mfg. Co.

Information supplied by letter.—Ed.

Silk Screen Printing Machines

In J. I. Biegeleisen's article about "The Silk Screen Process for Industrial Users" (Part II), as published in March 1949 issue, we notice mention of silk screen printing machines. We would like to obtain copies of catalogs and names of the nearest dealers.—T. I. C.

Information supplied.—Ed.

Silk Screen Finishing

Can you give us any information on third dimensional silk screen finishing? We manufacture advertising displays of various kinds, many with logo type and lettering embossed up to ¼-in. We have been told that it would be possible to silk screen surfaces and sides of such letters instead of using the mask and spray methods which we are employing at the present time.—P. L. Co.

We question whether this can be done satisfactorily. We are referring your problem to some of our technical men and they will write you direct about it?—Ed.

Dip Whirl Machines

I would like to know the names of companies manufacturing "dip whirl" painters for small parts such as screws. The coating I have in mind must take a 5-minute bake at 300° F.—T.S.E.

The names and addresses of two manufacturers of this equipment are being sent you by letter.—Ed.

Paint Spray Atomizer

With this letter we are sending you copies of two photographs of the same paint spraying atomizer. One shows the

sprayer in full closed position, and the other shows it approximately half-way open. In the closed position, the case is about 10-in. long. Extended with the pressure rod showing, it is about twice this length.

We have used these in our furniture refinishing room for many years, and have obtained excellent results on very fine finishing that is required on furniture. No one seems to be able to furnish us with this type atomizer, and we wonder if you have any ideas on where they can be obtained?—G. C. Co.

Looks like a hand sprayer for use around plants and insects. Throw it away and get a small spray gun especially designed for your type of work.—ED.

"Phenoglaze" Type of Material Wanted

We have, after the war, monthly received your excellent magazine INDUSTRIAL FINISHING. We are manufacturers of cellulose and synthetic lacquers, but being aware of the fact that a new type of lacquer for furniture trade is gaining ground on the market, we are seeking connections with a manufacturer of this type of lacquer with a license production in view. We have seen samples of a lacquer called "Phenoglaze"; this lacquer has a remarkable performance and eliminates rubbing or polishing, and has a great resistance against spirits and heat.

We would greatly appreciate it if you would give us the names of different manufacturers of this type of lacquer.—J. F., Oslo, Norway.

We refer you to Phenoglaze Sales Corp., 315 Broadway, New York 7, N.Y.—ED.

Pearl Essence Lacquers

I would appreciate a reprint of the article, "Facts About Pearl Essence Lacquers", as published in January 1932 issue of this magazine.—S.F., Bergen, Norway.

We have nothing left of what appeared in INDUSTRIAL FINISHING 17 years ago, but are sending you tear sheets of two articles on this subject which appeared in March and May issues of 1949.—ED.

Wood Graining

In the April 1949 issue, Letters from Readers, page 84, we notice that you have an inquiry concerning wood graining. We have the same problem, so we would appreciate your letter naming several concerns who manufacture or sell equipment and supplies for wood graining.

Thank you in advance for this information. May we emphasize the fact that we appreciate your magazine and our finishing foremen always look forward to its receipt.—W.O.Co.

Information supplied.—ED.

Finishing Furniture in Cycles

On page 18 of the May issue of INDUSTRIAL FINISHING, mention is made of an article in the April issue entitled, "Finishing Furniture in Cycles on Conveyor". We have lost or mislaid our April issue, and wish you would kindly send us another copy.—C. Industries, Inc.

Copy sent. Be sure to keep every copy you get of INDUSTRIAL FINISHING, as the demand for copies is so great that our supply of complete copies only a month old is soon exhausted.—ED.

We Make "Albino" Bleach

We notice in the Letters From Readers in May issue, an inquiry on page 88 by "C.F.Co.", for Albino Wood Bleach. This letter is to inform you that we are the sole manufacturers of Albino Bleach as well as "Scram", the waxless paint remover.

We would be deeply grateful if you will contact "C.F.Co.", or permit us to contact them, so that we can provide your reader with the material he seeks.

We are enclosing a circular descriptive of our products which are the results of 27 years of practical and laboratory experience.—M.A. Weiss & Co., Long Island City 1, N.Y.

Glaser's Article in Demand

We are interested in obtaining about five reprints of an article by M. A. Glaser entitled, "The Vehicle, Single Most Important Factor in Finishes", which begins on page 22 of January 1949 issue of INDUSTRIAL FINISHING.

Mr. Larson of your New York office suggested that it might be possible for you to send us tear sheets. We shall appreciate your help.—H. Chemical Co.

No reprints of the article were made (reprints cost money) but we are sending tear sheets from mutilated copies.—ED.

Water Wash Booth Trouble

During a period of several years I have been reading INDUSTRIAL FINISHING Magazine and I have observed the favorable assistance you have frequently been able to give to readers in solving problems relating to finishing.

It occurred to me that you might be able to aid us in solving a problem assuming major proportions, namely that of maintaining spray booths. We have one 48-ft. and two 40-ft. water wash

spray booths. They are not of a standard make. In spite of the water wash action with proper chemicals, we have an excessive accumulation of overspray on baffles and exhaust tubes and other places that cannot be reached with scrapers. I believe that the only effective way of cleaning would be with a satisfactory stripper in the water wash. And that is the point.

Are you familiar with any efficient stripper which can be used to strip the unbaked melamine-urea-alkyd resin material from the interior of these spray booths? We have tried several commercial strippers and have even heated the 3500-gallon water tanks with steam jets without getting satisfactory results. Any assistance that you might be able to give us will be greatly appreciated.—O. O. Co.

We have referred your problem to a chemical engineer who specializes in this type of work—and he is near your city. —ED.

Infra-Red Reflectance of Paints

We are extremely interested in securing two copies of the September 1942 issue of INDUSTRIAL FINISHING magazine, for the article by Paul O. Blackmore titled, "Infra-Red Reflectance of Paints". Is it possible to secure two of these back issues, or do you have reprints of the article?—B.R.

We have no complete copies of September 1942 issue of INDUSTRIAL FINISHING Magazine, but we are sending you some partial copies which contain Mr. Paul O. Blackmore's article about, "Infra-Red Reflectance of Paints". We trust that this will take care of your requirements.

The demand for this magazine is so great that we are unable to keep back copies for any great length of time.—ED.

Coating Small Thin Parts

In the May issue, page 96, one of your readers inquires about a method of coating small thin parts. We would appreciate your handing us the name and address of the concern making this inquiry in order that we may secure actual samples of the item, to determine if our method of finishing would fit their requirements.—T.V.

Information supplied.—ED.

Want Black Coating for Glass

In regard to the "Letters from Readers" section of INDUSTRIAL FINISHING and the service you have rendered to other readers with industrial finishing problems, we would like to put our problem before you and hope that you may be able to offer a possible solution.

We are looking for a black paint or similar applicant which will adhere to the inside of a pyrex glass dome. The dome is approximately 16-in. in diameter and 17-in. deep. This is placed in position over a tungsten lamp which creates a temperature near 270° F. on the glass.

The black paint is required to completely restrict the light in designated areas. Our past experience with various black paints has shown that after an installation of one to two years the paint begins to peel in large sheets. This peeling greatly reduces the efficiency of our assembly.

We will greatly appreciate any suggestions as to a sprayable or brushable paint with dependable adhesion to glass. Any suggestions as to surface preparation of the glass prior to painting, to promote adhesion, will also be welcome.—M. P. Co.

In a letter we are naming concerns which, we believe, can supply what you need.—ED.

Zinsser's 100th Anniversary

William Zinsser & Co. (importers and manufacturers of shellac), 516 W. 59th St., New York 19, N.Y., has prepared an interesting and attractive illustrated booklet of 16 pages, 11x9-in., printed in black and yellow (yellow for shellac).

The booklet is appropriately titled, "William Zinsser & Company Begins Its Second Century". Inside are pictures of scenes at and near the Zinsser plant and at the waterfront where sailing ships docked to unload imported gum shellac a century ago. Other pictures show Broadway and the Zinsser place of business in 1870; Fifth Avenue, Old Coney Island; the Zinsser plant and offices and other New York scenes at the turn of the century (1900) and finally, similar New York scenes including views inside and outside the Zinsser establishment, as they are today.

Zinsser's products include Bulls Eye Shellac, Bulls-I-Namel and Zinlac.

Short Course on Corrosion

A "Short Course on Corrosion," has been scheduled September 12 to 16 at University of Texas, Austin. The course is being sponsored by the National Association of Corrosion Engineers, Houston, and is directed principally to persons in industry who must deal with corrosion problems, but who have not had the experience or background to do so efficiently. Dr. Norman Hackerman, of the university faculty, is assisting officers of the NACE South Central Region in making arrangements for the course.

Applications for official registration blanks are being received by A. B. Campbell, Executive Secretary, National Association of Corrosion Engineers, 905 Southern Standard Bldg., Houston 2, Texas. Registration fee is $20.

WHEN YOU BUY BLACK PAINT YOU WANT IT BLACK

All Your
BLACK COATING REQUIREMENTS
Can be Met Perfectly from this Line of
JAMESTOWN SUPER-BLACKS

- Lath-Cote
- Japco-Jet A
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- Sable-Cote
- Carbo-Graph
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and beyond these our LABORATORY is at your service on special problems

THE JAMESTOWN PAINT & VARNISH CO.
JAMESTOWN, PA.
BLACK COATING HEADQUARTERS
INDUSTRIAL FINISHES SINCE 1885

Gold Leaf Finishing

By P. C. Bardin

COMPARATIVELY few people stop to think of the beauty as well as the permanence of gold and silver leaf as a decorative coating. It may be used as an overall finish for certain products, or it can be used as a decorative treatment in connection with organic materials to enhance the beauty of an article.

Gold leaf may be applied to almost any type of material, provided the surface is properly prepared to receive it. Genuine gold leaf requires no further protective coating unless it is to be subjected to unusual exposure to friction or abrasive action. It may be left in its original state as applied, or the gilded surface may be given added sheen by burnishing. Gold leaf is available in various shades such as dark (natural), lemon, pale or white gold. The latter is a gold and silver alloy, and because it contains silver, a protective coating is necessary to prevent discoloration.

According to one large manufacturer, gold leaf is available in standard size sheets 3⅜-in. x 3⅜-in., packed loose between rouged tissue in books containing 25 leaves, the smallest unit. The standard unit—a pack—contains 500 leaves or 20 books. Each book is enclosed in an individual envelope. Packs are wrapped and packed in a 4 x 4-in. box weighing about ½-lb., filled. Allowing for normal laps and waste, a book of 25 leaves will cover about 1½-sq. ft. A pack of 20 books will cover about 30-sq. ft.

Gold leaf is also available in rolls, sometimes referred to as ribbon or roll gold. In this form it is slightly adhered to tissue rolls from which it releases to the size on slight pressure. Standard rolls are from 1/16-in. to 3¾-in. wide and 67-ft. long. Each one inch of width of gold leaf in rolls will cover about 5½-sq. ft.

Some idea of the permanence of gold leaf, as a decorative finish, may be had by observing gilded picture frames and books with gold tooling and edging. Some of these are several hundred years old and are still in excellent condition.

Another striking example of the possibilities of gold leaf is found in The Prometheus Statue in the Lower Plaza at Rockefeller Center in New York. This bronze statue is 18-ft. high and weighs about eight tons. It is exposed to all of the natural elements; and water from a fountain continually plays upon the lower section of the statue. In 1948 this statue was regilded with gold leaf after 14 years, and the original gilding was still in good condition. Some of the brilliance had been lost which accounts for the regilding.

Ordinarily gold leaf needs no protective coating; however, the statue was given a coat of super spar varnish to protect the gold against friction of the water from the fountain.

Other notable examples that show the permanence of gold leaf may be found in numerous church spires and on the domes of public buildings and universities, notable among the latter being the gold dome of the University of Notre Dame at South Bend, Ind.

Texo Corp. Elects New President

Boris Sway has been elected president of the Texo Corporation, Cincinnati, Ohio. Sway, who has played a prominent part in research and development of detergents, has been vice-president in charge of production at Texo since its inception several years ago.

Prior to his association with Texo, Sway acted as consultant for two companies specializing, like Texo, in the production of surface active chemicals for maintenance and processing in all branches of industrial activity.

Don Bertke was elected vice-president at the meeting. Bertke announced that several new products were soon to be introduced to the market.

Finishing SYSTEMS

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. . . Modern Finishing Equipment—

Prime Requisite of Modern, Efficient Methods!

Illustrated here are views of a complete Mahon Finishing System recently installed for a progressive manufacturer . . . it is the second Complete System installed by Mahon for this concern in the past four years. This ultramodern finishing system is a self-housed unit planned from-the-ground-up and built adjacent to manufacturing buildings—eliminating heeby all building restrictions normally encountered inside of industrial plants, and permitting the free-dom in planning which results in 100% efficiency in production layout and equipment performance. The trend in industry today is toward this type of efficiently planned, self-housed finishing system to permit the unhampered application of modern efficient, cost reducing production finishing methods. Competitive markets now force the ever increasing necessity for high quality in product finishing at a lower unit cost. If you are contemplating new finishing equipment, remember that the broad experience of the Mahon organization in every industry where finishing constitutes a major production operation, backed by constant research, experimentation and development, has endowed Mahon engineers with a wealth of technical knowledge and practical know-how not available to you elsewhere.

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Engineers and Manufacturers of Complete Finishing Systems—including Metal Cleaning and Rust Proofing Equipment, Dryoff Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Systems, Drying and Baking Ovens, and Paint Reclamation Units. Also, Core Ovens, Hydro-Foam Dust Collectors, and many other Units of Special Production Equipment.

MAHON

Designing and

By
W. H. ADAMS, S.I.D.
Industrial & Commercial Designer

A typical example of how this designer works out a mock-up covering to fit a new utility mechanism, why he chooses certain lines, and what influences his selection of paint colors.

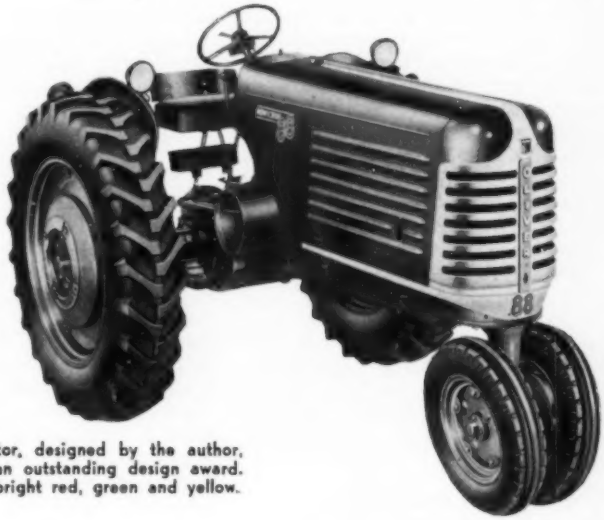
STYLING OF farm equipment is definitely here to say. While in this short article we will be discussing the tractor, much or all that we say here is more or less pertinent to the entire field of designing, in relation to farm equipment.

Several factors have contributed to this style-consciousness in rural work-a-day life: Our many and colorful magazines for popular reading; high-powered advertising over the air waves, with radios in all farm homes; and the ease with which farm folks can now reach metropolitan centers where they come in intimate contact with the latest products now produced for all phases of their living.

Farmers Pick Strong Colors

We consider, then, that the farmer is going to take a good look at whatever he is going to buy. He wants his new tractor or his new milking machine to be easy on the eye. At the same time we must remember that he won't buy on appearance alone; that his practical way of existence demands real dependable utility.

Painting the OLIVER TRACTORS



This new tractor, designed by the author, has received an outstanding design award. It is painted bright red, green and yellow.

To approximate the farmer's feelings along these lines, we visited county fairs and mingled freely among the men who were looking over farm machinery exhibits. We noted their likes and dislikes, their comments, even their dress.

In a nutshell, we found that the average farmer wants colors that shout. His green must be green, and his red must be red; gaudy and gay, would be another way of expressing it. He wants flash; you might say he wants raw colors; he doesn't appreciate shading to any great degree.

This prime factor was duly considered when we went to work on designing the new line of Oliver tractors, one of the finest farm power vehicles on the market today. We worked in close collaboration with engineers at the large Charles City, Iowa plant, striving for an appeal to the buyer while at the same time working for the ut-

most in utility and ease in maintenance. We kept considering economy, both for the consumer and in manufacturing.

Tractor Paint Job Must Stand All Kinds of Weather

Considering utility, now we come to a factor that is as important as any to the consumer, if not as immediately discernible as the bright colors demanded by the farmer. This is weatherability. The tractor must really take it. The paint job must stand up under terrific punishment—the hottest sunshine, rain and mud, and the rigors of winter weather. The tractor's paint job must be practically impervious to all of these.

We carefully chose colors that, in the end, might best be described as "Kelly" green, "Fire-engine" red, and the brightest yellow—for the body, wheels and trim respectively. The paints were specially formulated by a large manufacturer whose advertising I've seen in this magazine.

Production Cleaning Plus Dipping and Spray Coating

The Oliver "66" is painted and assembled on a conveyorized plan, going from cleaning of parts through spray booths for application of the prime coat, drying and final one-coat application of colors and baking by conveyorization through ovens.

Continuous passage of smaller parts through the dip tanks builds up, in spite of precautions, a certain amount of impurities. As the paint foreman says, "if we don't guard it carefully, we find that the bright color we want for the tractor part becomes dirty". This is not immediately noticeable at the plant, of course, but it becomes apparent after the tractor is in the field a while. The bright new color may fade or become discolored in time. So we have a thorough checking arrangement at the plant. At frequent intervals sample dippings are taken of the paint. These sample dippings are dried and carefully studied in comparison with original color plaques. Adjustments are then made, as required, in the mixing of the paint.

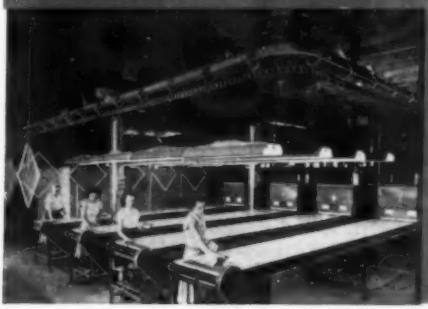
Tractor Calls for Weight, Power and Dependability

You must consider that the designing and painting of farm equipment is quite different from similar work on automobiles for instance. No elaborate metal finishing technique is called for on a tractor or combine (we integrated the two machines, in working on the "66".) These machines are made for weight, ruggedness and power. Light metals are out of the picture, along with certain other luxurious considerations.

Some tractors are fitted with extra weights on the wheels, for instance to provide the needed overall weight. The basic design and engineering of the Oliver "66" built the needed weight right into the tractor, the castings, the chassis assembly and the sheet metal stampings.

Along this line, we don't like the word "streamlined" in connection with tractor designing. After all, we are not after speed in this vehicle. We want power, ruggedness and durability. The very nature of the product is workability,

HERE'S CUSTOMER'S OWN PROOF that JENSEN Infra-Red Ovens Bake *Pastel* Shades Successfully!



IT'S TRUE—*nothing succeeds like success!* Three years ago Cadillac Manufacturing Co., Mt. Clemens, Mich., faced this problem: How to bake 10 to 12 different ***pastel*** shades of enamel on metal tile *without danger of overbaking certain areas and underbaking others.*

They called in Jensen, who designed and built a special "dual-heat" infra-red oven with ***"nested" lamps*** to do the job.

Results have been so gratifying—color so consistent—beauty so outstanding—sales so increasingly up, up, up—that now Cadillac has installed **FOUR** Jensen "nested-lamp" infra-red ovens to handle production requirements!

Jensen "dual heat" Infra-Red Ovens are designed to industry's specific needs. Write us about YOUR problem today!

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In Finishing Production . . . the Future Belongs To Men Who *Plan* For It!

and it is therefore given a rugged, bulldoggy appearance that typifies power.

The latter considerations were carefully worked out in our rural workshop, near Erie, Penna. And this is worth noting: All of the designing was done at this workshop, far away from the plant. We received a stripped-down tractor, and fabricated the mock-up body on the spot. Then plant management and engineers visited the designer's studio and obtained a "fresh" perspective of the new model.

Economy in design held us down to as little machining requirements and fancy gadgets as possible. Simplicity was the keynote, while keeping other factors already mentioned in mind. One fabrication example is afforded by the tractor front. It is designed in two sections (left and right pieces or grillwork) which snap into place; then the center joint is covered with the nameplate piece.

One more interesting fact in the designing of the Oliver tractor is the inclusion of side panels in the motor housing or hood, as it is popularly known. This is a very controversial point.

The consensus of opinion in some quarters is that once a farmer has occasion to remove the side panels for lubrication or adjustment of the motor, he won't bother to replace them, so why put them on in the first place?

But we have found that out of, say, 100 Oliver tractors in the country's fields today, you'll find 95 of them with the side panels still on. This comes back to the farmer's style-consciousness, and to his liking of beauty as well as strength and utility in his equipment. Also, it is easy enough to incorporate louvers and vents in these panels for ventilation. And to top it off, you remove the menace of dirt and chaff to the motor when the side panels are in place.

The new Oliver line, we might conclude, received recognition as an "outstanding design" for 1949 in a recent edition of the industrial section of the magazine "Interiors". It also caught the eye of the Department of the Army, which requested and got permission for projected use of a picture of the "66" with an article on "Industrial Design" for publication in the U.S. zones of Germany and Austria.

Farmers like appearance, as well as utility, in their farm equipment; brilliant colors and integrated design are part of the answer, as revealed in this Oliver tractor and combine.

How this novelty item, made of glass, plastic and sheet metal is coated partly with paint and partly with flock. Operations consist of metal cleaning, dip coating the decorative colors and adhesive, spraying on flock, infra-red drying and assembling.

MOST of you are probably familiar with or have seen the bobbing duck that stands in front of a container of water and continues to bob for water as long as the liquid is within its reach. Without going into technical details as to how it works, it is necessary for continued operation that the duck's head be wet so that continuous evaporation will cause a difference in temperature.

The duck's body, long neck and head with pointed top-knot is made of glass. The bill, which is attached to the glass head, is of plastic. The supporting stand, formed in the shape of legs and feet, is made of sheet metal.

A glance at the accompanying picture shows that flock plays an important part in finishing this novelty. In fact, I do not know of any other material with which the glass head could be coated that would retain the moisture necessary for evaporation. The lower part of the stand, formed in the shape of over-size shoes, is flock coated for utility and decoration.

Painting, Flock Coating The Glass Body

Painting and flocking operations begin with the placing of 14 of the sealed glass tubular bodies, with bill attached, in a slotted rack with the heads up. The bodies are hand dipped in yellow lacquer. The depth to which they are dipped in the yellow lacquer is not especially particular because a red collar will be applied later, and this will even up the body length of yellow.

After the coat of yellow lacquer has dried for four hours, an operator hand dips the heads and upper part of the neck in a red plastic solution. In this dipping operation, only two ducks are dipped at a time, instead of an entire rack, because of the difference in length of the glass top-knot. If an entire rack full of ducks were dipped at one time, the red collar would be half way down the neck on those with a short point, while those with a long point would have no collar at all.

The coat of red plastic is allowed to air dry for about an hour. Then

the heads are again hand dipped, two at a time, in a red synthetic chlorinated - rubber - base enamel which serves as an adhesive for the coat of flock.

Waterproof Red and Flock Adhesive

The red plastic coating, followed by the rubber-base adhesive, provides the necessary water resistant properties. After both of these dip coats, the operation returns the ducks to the slotted rack in which they are positioned with their heads down so that the excess adhesive can drain properly.

While th adhesive is still wet, a spray coat of ½-mm. red rayon flock fibers is applied. The operator holds the rack in one hand while he sprays the flock over the heads which project down. This technique is followed so that any excess flock will fall to the floor of the spray booth where it can be recovered. By the time the ducks' heads are ready to be sprayed with flock, the first dip coat of red, which forms the collar, has dried sufficiently so that the flock fibers will not stick to it. The second dip coat of red enamel to the head only provides a heavy adhesive base to receive the flock fibers. The flock-coated ducks air dry overnight and are then ready for assembly of eyes and feathers.

Dipping lower part of the stand (feet) in red synthetic enamel (adhesive) just before application of the flock.

Operator holds a loaded rack of ducks as he sprays flock on their adhesive-coated heads.

Painting and Flocking The Metal Stands

Metal stands (feet which support each duck) go through a trichlorethylene vapor degreaser to remove oil and finger marks. Then the up-

duction costs?

Exaggerated situation? Well, maybe! But today's rising costs have many production teams feeling this way.

Next time you study your cost structure with an eye toward economy, take another look at your finishing materials and methods. For finishing costs . . . *which include far more than simply price per gallon of finish* . . . have a direct bearing on your total end cost.

A breakdown of your finishing process may reveal new ways of effecting *real* savings. Often the choice of the right finish, correctly applied, makes *dollars and cents differences*... in drying time, storage space, labor costs, percentage of rejects, and packaging operations.

To help you examine your finishing process ... to aid you in discovering *new* overall production and handling economies, call on Du Pont. Today, thousands of pre-tested formulas under the trade names "Duco" and "Dulux" are helping to keep manufacturers' end costs at a minimum.

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Spraying flock on metal feet as they pass through the spray booth, hanging from the overhead chain conveyor.

per part of the stand, which forms the legs of the duck, is dipped in yellow synthetic enamel; this is allowed to air dry four hours.

Next the operator dips the lower part of each metal stand into a shallow pan containing red synthetic enamel (adhesive) and hangs it to an overhead chain conveyor. The depth of his red adhesive (in its container) is watched carefully so that the adhesive will not extend beyond the top of the oversize shoes. In the next booth, which is close by, the stands are given a spray coat of 1½-mm. red rayon flock fibers as they pass through by conveyor. They are carried on through an infra-red oven where the flock coat is force dried for three minutes at 135° F. After drying overnight, the flock-coated metal (feet) stands are ready to be packed with the finished ducks.

The flock applied to the stands serves two purposes; it is decorative and the fibers on the bottom of the stand prevent the metal from scratching any polished surface on which the novelty may be placed.

Oakite Elects New President

At a recent meeting of stockholders and employees of Oakite Products, Inc., New York, manufacturer of industrial cleaning and allied materials, announcement was made by the Board of Directors of the election of John A. Carter as president of the company. The new president has been associated with Oakite for 34 years, serving in recent years as assistant to the president and, since 1947 as general manager of the company.

D. C. Ball, founder and president of Oakite, and long a pioneer in the development of specialized cleaning compounds, was elected Chairman of the Board. Also announced at the meeting was the election of David S. Ball, former vice president, to the newly created office of First Vice President, as well as the re-election of H. Liggett Gray as vice president, James Beckett as treasurer and David A. Hearn as secretary.

Roto-Finish Co. at Kalamazoo

The Sturgis Products Co., Sturgis, Mich., producer of Roto-Finish materials, equipment and processes for mechanical finishing, has changed its corporate name to the Roto-Finish Co., and moved all sales and manufacturing to its new plant in Kalamazoo, Mich. This change affects the name of the company only. Organization and company structure remain the same.

Roto-Finish, the copyrighted trademark, was incorporated in the new name because it is widely known in industry and is more descriptive of the company's operation.

Plant Manager of Imperial Furniture Co., in Grand Rapids, explains how table tops are prepared for a leather covering, how the leather is cut, coated, glued, rubbed, coated again, tooled, gold embossed and finally finished to give that rich appearance which characterizes the completed fine furniture.

Leather Top TABLES

By A. F. Christy

THE manufacture of plywood tops that have fine face veneers has become a well organized and efficient business. It matters little whether these tops are produced in the furniture factory or in a plywood plant; there are well established methods and materials which, if used correctly, will produce uniformly dependable results. The manufacture of plywood is an old art that has been modernized. Much research, study and experimentation is responsible for its present high degree of efficiency.

Now let us compare this with the leather covered table tops which are so popular today. This might be called a revival. Leather was popular many years ago. However, today's demands for production and economy cannot be compared to the former era of popularity in leather. Yet in all of this the manufacturer of high quality furniture wants to be reasonably sure that his product will endure.

(Page 73)

Here at Imperial we have developed a procedure which, by every test, has proved to be highly successful. To best describe this I shall explain the step-by-step procedure we use in finishing a leather-top coffee table. *The leather is applied after the table is completely finished.* In most cases a finished wood border 1½ to 3-in. in width remains, and the leather covering is placed inside this border.

Complete Wood Finishing Precedes Leather Covering

Table tops are constructed to receive the leather covering. On a mahogany top, for example, the mahogany border is about 3/32-in. higher than the middle area which is to be covered with leather, so that when the leather is cemented in place it will be flush or level with the mahogany border.

Upon entering the finishing department tables are water-stained, wiped and allowed to dry over night.

(Continued on page 74)

Then the recessed flat middle area (inside the exposed mahogany border) which is to be covered with leather, is masked to prevent any overspray from succeeding coats of finish getting into it.

Next a wash coat of lacquer (9% solids) is sprayed on and allowed to dry about 15 minutes. Tables are then lightly sanded with No. 7/0 sandpaper. Because of the raised grain (due to the use of water stain) they must be given a thorough sanding.

After being sanded the surfaces are wiped clean and an oil-base filler is sprayed on, padded-in, wiped and allowed to dry overnight. Next a spray coat of pigmented lacquer sealer (21% solids) is applied; this coat is allowed to air dry from one to 1½-hours before sanding. Inspection follows and any necessary patch work is done before the tables are given a glaze coat of pigmented oil stain. Then the tables are wiped and allowed to dry overnight.

Padding the alcohol-base color into grain of fine leather, using a hand rotary motion.

Two top coats of clear gloss lacquer (27%) solids are applied, with four to five hours drying time between coats and overnight drying after the second coat. Next morning the bases of the tables are steel-wooled before they are taken to the leather room for application of leather top.

Cutting and Preparing Leather for Tops

Leather intended for application on wood furniture should be soft, pliable, smooth and flat. The first work is to cut it to shape and size. To expedite the cutting operation, we have fiberboard patterns made to the exact shape—that is round, rectangular or irregular shaped—and ½-in. larger all around than the area to receive the leather.

The leather hide is placed face up on a large table where a workman inspects it to determine the best area to cut in order to get the most out of the hide. Leather cutters become adept at determining which patterns, placed in a certain position, will produce the least amount of scrap leather. A sharp rigid-back knife similar to a linoleum knife is used to cut around the pattern. It is important that this cut be clean and smooth.

Leather is Cut to Shape, Hung up and Lacquered

After being cut the leather pieces are taken to a spray booth where a coat of orange tinted special leather lacquer is applied. Pieces are hung in a vertical position to dry for

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Finishing Time Cut 55%

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PROBLEM: Using a finish with the required properties called for a 20-minute drying time. Problem was to speed up production by finding a quicker-drying finish, with equal or better properties.

SOLUTION: Manufacturer sent sample parking meter to our laboratories. Extensive tests on samples sprayed with our Alpo-33A Hammer Finish, showed better weather and abrasion resistance than finish formerly used —AND, *finish dried in 9 instead of 20 minutes* at 275° to 300° F.

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Thousands of formulae on hand in our files to solve your finishing problems. Extensive laboratory facilities and large technical staff ready to develop and test finishes on your products. Write today for Technical Data Sheet on Alpo-33A, or send your products for finish specification and for testing.

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about four hours. On damp days, when the humidity is exceptionally high, it may require five or six hours for the leather coating to dry properly.

Next the pieces are placed on a smooth plywood bench where a workman hand-pads an alchohol-base color into the grain of the leather, using a rotary motion to accomplish the desired results. The color for this work is determined by the final color effect required for the particular table on which the leather will be used.

Then each piece of leather is taken back to the spray booth where a shading coat of the same alcohol-base color material is sprayed on. Shading must be carefully done to produce the desired color effect, as this is the last color coat to be applied. This color or stain coat dries from 30 minutes to one hour before the piece is given a spray coat of clear leather lacquer. The final lacquer coat must dry from four to six hours before the leather can be applied to the top of the table.

How Leather is Glued To Prepared Table Top

The masking tape, which had been placed on the table top, inside the natural wood border, is removed and the area to receive leather is brushed to clean the surface of any dust or foreign particles. Then a coat of special vegetable glue having a consistency similar to library paste is brushed on the area to receive the leather. This glue coat should not be too heavy, yet the surface must be uniformly coated and brushed-out well. The leather is placed in position on the glue coated surface. It must be applied to the surface immediately, as the bond will be ineffective if the exposed film of glue is allowed to air dry for five minutes or more.

Spraying a piece of leather with special orange-tinted leather lacquer is the first step in the finishing procedure.

When the leather is in place the workman uses a rounded-edge hardwood block similar to a squeegee and strokes from the center to the outside edges to work out any air bubbles and to cause the leather to make close contact with the glue-spread surface. As this work is being done, the operator lifts and stretches the leather in all directions and finally presses it down firmly to the top. Then, using a blunt steel tool about ½-in. wide, he presses the leather firmly down around the edge of the finished wood border. This operation also marks the leather, giving a guide for cutting off the excess material.

(Continued on page 78)

"Hey . . . I'm in a hurry!
I don't need this extra coat!"

Remember—
a
"fresh viewpoint"
often
works wonders!

Do you have a finishing problem that's throwing a "monkey wrench" into production?

Why not let Unichrome engineers "take hold" —bring a fresh viewpoint to bear on your problem?

Some of their imagination and out-of-the-rut thinking is just what many finishing problems need.

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You will remember that the piece of leather was originally cut ½-in. larger than required. For cutting off the excess leather a very sharp pointed rigid-back knife is used, the workman following the mark left by the steel tool.

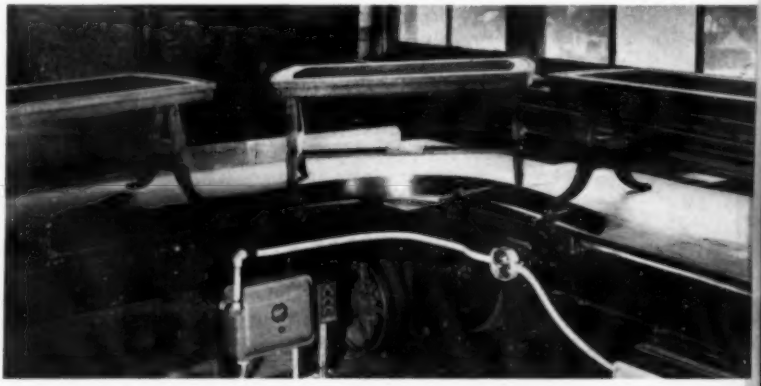
After the leather has been cut to net size the steel tool is again used to press the edges of the leather firmly into place at the outer edges where it joins the wood border. Then the wood border is wiped with a sponge dampened with water to remove any glue that may have become smeared on it. Finally it is wiped dry.

Blind and Gold Hand Tooling

Leather tops are allowed to air dry or "set" for 20 minutes before they are tooled. For blind tooling, we use an electrically-heated brass embossing wheel which has the pattern design on the face of the wheel. This wheel is rolled around the edge of the leather with sufficient pressure to embed the design in the leather. After the impression is made the operator uses a rounded edge steel tool to smooth down and level off the tooling.

Using a small brush, the workman applies, to the tooled area only, a coat of the same alcohol-base color which was used to pad and shade the piece. This stain is wiped off immediately, first with a cloth dampened in an oil solvent and finally with a dry cloth. The purpose of the operation just described is to slightly darken the embossed design. To be effective, blind tooling should be unobtrusive; it is not an inlay.

Some leather tops receive both blind and gold tooling, with the gold tooling between. In other words, the gold tooling is bordered on both sides by blind tooling. On these tops a marking gauge is used to establish the guide line to be followed for gold tooling. This is applied next, using the same type of electrically-heated brass embossing



Leather-top coffee tables on a belt conveyor move around a 90° curve without a scratch.

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wheel, except that this tool has a reel of gold leaf just above the embossing wheel. The gold leaf is fed under the embossing wheel which, as it revolves, presses the thin gold into the leather as the design is formed. Upon completion, a soft brush is used to brush off any gold flakes from the surface. Finally, using the flat side of a blunt blade, the workman passes it lightly over the gold embossing to level it off.

The table then goes to the "blind" tooler who marks off even spacing with a light gauge line and repeats the operation described above.

The entire table top, including the wood border, is given a spray coat of special leather lacquer which is allowed from four to six hours to air dry. Then the top is rubbed with rubbing compound. Next the entire table is given a coat of mineral wax, polished and inspected. A belt conveyor carries it to the trim department where necessary hardware is installed. Edges that need it are touched up and final inspection is made. Just before the table goes to the packing room the top is buffed with a sheepskin wheel.

Quick Drying Filler

PRIMARILY, there are two types of wood filler, namely the old type of linseed-oil-base filler and the newer type of quick-drying filler. The first named type requires 12 to 18 hours of air-drying time before the application of lacquer sealer! otherwise it may turn gray. The second type only requires one to two hours.

Quick-drying filler contains a minimum quantity of oil—and what oil it does contain is usually processed in some form to make it fast-drying. Now some of these quick-drying fillers contain so little oil that to offset the possible tendency toward difficult wiping, the maker or the user adds quantities of a slow-drying solvent, like kerosene, to aid in the wiping.

When such a slow-drying solvent is used in filler, it often happens that lacquer sealer is applied too soon; in other words before the filler is dry. Then this slow-drying solvent in the filler will cause the lacquer sealer to turn white and give the effect of the pores have turned gray. When this is the cause of the trouble it can be easily determined by spraying lacquer thinner over the surface and then checking to see if the grayness disappears. Obviously this type of gray pores shows up shortly after the sealer has been applied; if it doesn't show up then, it will never show up.

Another feature of quick-drying filler that sometimes causes trouble is that there is so little oil-type vehicle in the formulation that all of the pigment does not become properly wet. If the pigments that are used for coloring are not sufficiently wet with oil or oil-type vehicle, the color of the filler in the pores may be lighter in color than the surrounding wood, and thus give the effect of the pores having turned gray.

This feature can be easily checked by adding colors ground in linseed oil to make certain that there is sufficient coloring pigment that is properly wet to make the color of the pores darker than the surrounding wood.

Having done a great deal of experimenting in the last several years with quick-drying fillers, I have found these two points to be the cause of 90% of the troubles encountered.—RAYMOND C. ADAMS.

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The Cold-Crack Test

FOR EVALUATING FURNITURE FINISHES

By Rollin H. Wampler

FOR A LONG time I have worried along with the cold-crack test in evaluating furniture finishes. Finally, about four years ago, I became disgusted with the accepted methods of running the test and set out to eliminate some of its many vagaries. Practically all of the work I have done points to *lack of control of moisture as causing most of the trouble.*

While I have not yet worked out a procedure that can be recommended for general use, still I feel that by presenting my ideas to others interested in the test, the faster the test will be standarized.

In my book, "Modern Organic Finishes, Their Application to Industrial Products", I have gone on record as saying that the cold-crack test is the most important single overall test in evaluating the life of a furniture finish.

The cold-crack test is poorly understood but it is so widely used, in spite of its vagaries, that all furniture finishers know something about it. Considering the present practice in conducting the test, it has no value as an absolute test. You cannot, for example, truthfully say that a finish will pass ten cycles (under specified conditions) and fail on the eleventh, because the test cannot be duplicated with the necessary accuracy by different operators, or even consistently by the same operator.

Cold Crack Tests Are Comparative Tests

Cold crack tests are good only as comparative tests; that is to show whether, in testing two finishes under the same conditions at the same time, one finish will resist cracking better than another. Even then the panels should be run in duplicate or triplicate for the observations to have any reasonable degree of accuracy, and a standard system should be run for a control. That is the only sense in which I consider the cold-crack test to have a definite meaning.

The usual method of conducting the test is to select wood panels as nearly alike in texture as possible, finish them, seal the backs and edges with a coat or two of lacquer or varnish, age for a few days, and then test.

The test is run by placing the panels in an oven at about 125° F. Here they remain for one half or a full hour. They are removed and placed in the cold chamber for a similar length of time at 5° to 10° F. below zero. At the end of that

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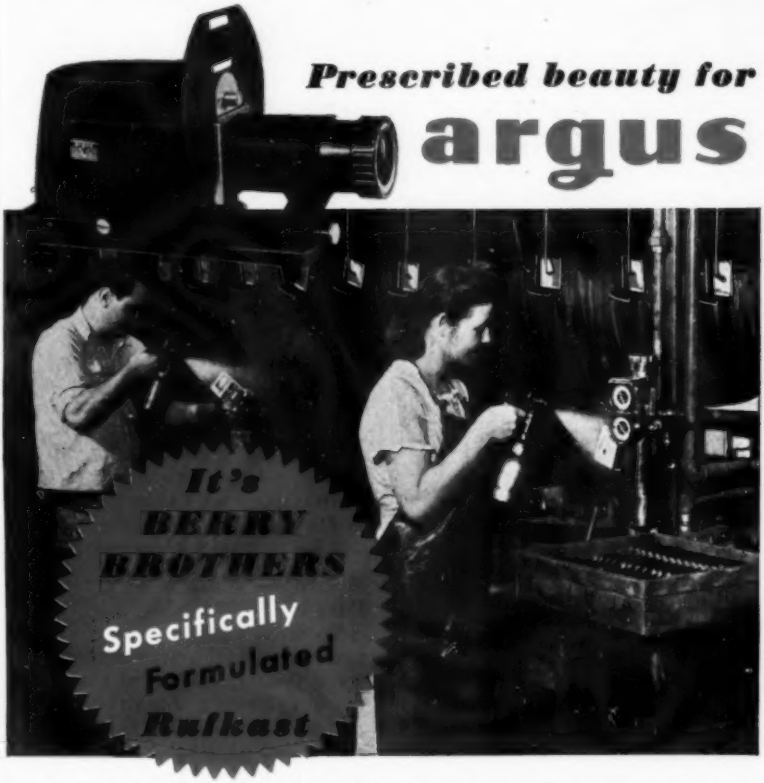

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time they are conditioned a similar length of time at room temperature and examined critically for cracks.

This procedure makes only a half-hearted effort to control the effect of moisture. Tests have shown that the usual method of sealing the backs and edges is not adequate to hold the moisture content of the wood constant.

Controlled Moisture Increases Accuracy

There are two ways to refine the test to increase its accuracy. The first is to control moisture better to hold its influence relatively constant. The second is to take the effect of moisture into consideration and make it an actual part of the test.

To hold the moisture factor relatively constant, one suggested procedure is as follows: First select a large panel of relatively uniform structure and cut it up into smaller panels for the test. Finish the panels to a selected optimum dry film thickness. Do not finish the backs and edges at this time. Then age the panels in a constant-temperature room for four days so that chemical changes within the film will be completed, and so the moisture content of the wood will reach an equilibrium.

A temperature of 70° F. and a relative humidity of 50% are suggested in the constant-temperature room. Now finish the backs and edges, and age the panels 24 hours more. Then run the cold-crack test.

The relative humidity in the cold chest and in the oven should be controlled values which will tend least, at those temperatures, to change the moisture content of the wood. These values are not difficult to work out at any given temperature. Over-night periods should be in the constant-temperature room.

Tests under these conditions certainly mean a great deal more than those where moisture is largely disregarded. By the usual method of running the test, the loss of moisture in the oven, resulting in shrinkage, tends to neutralize the slight expansion due to the temperature increase. Likewise in the cold chest the gain in moisture tends to offset the shrinkage due to low temperature.

A cold chest in continuous service, when used for cold-crack tests, gives far different results than the same chest used in intermittent service, because in continuous service the moisture content of the air in the chest is far higher than it will be in intermittent service.

Moisture Changes As Part of Tests

To make moisture change an actual part of the test makes more sense than one might at first think. *It is extremely doubtful whether serious cracking of a finish in service is due as much to temperature change as to stresses due to moisture changes in the wood.* After all, the expansion and contraction of wood due to temperature change is almost negligible. On the other hand, the expansion in a transverse (across the grain) direction, with variation in humidity, may amount to as much as 10% or 15%. Even in plywood the expansion may be 2% or 3%. The expansion due to moisture change is almost negligible with the (lengthwise) grain.

(Continued on page 86)

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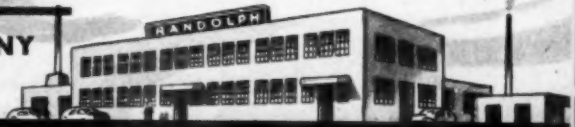

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Why not leave the backs and edges of panels entirely unfinished, and keep a relatively high humidity in the oven and a low humidity in the cold chest? Each exposure would have to be for 24 hours so that the moisture movement would have some effect. Further, the control of humidity in this manner would tend to emphasize stresses due to temperature change. It certainly correlates better with actual service conditions, since in practice most unexposed parts of the wood are unfinished.

Cold Crack Resistance vs. Waterproofness of Panels

Perhaps it would be well to correlate cold-crack resistance of a finish with its moisture-excluding effectiveness. The test would be conducted exactly as just mentioned, except that all surfaces of the test panels would be finished with a uniform thickness of the same material. While this cold-crack and moisture-excluding test might not correlate as well with actual service conditions, it would give a valuble combined measurement of these properties, and would tend to even out unavoidable variables due to variation in the structure of the wood.

Perhaps a few words concerning observation of the cold-crack test would be in order. The usual practice is to look for cracks across the grain, disregarding cracks that occur with the grain. In practically all cases, failure begins at one edge of the panel, and the cracks parallel the grain. Many times this cracking so relieves stresses that cracks across the grain never occur. I believe that it is better to regard such cracking as failure, with no attempt to differentiate between the two types.

Although much work confirming these ideas has already been done a great deal more will be required before the test can be standardized. There are many others who have struggled with the vagaries of the cold-crack test. Perhaps the ideas presented in this article will result in faster progress for all concerned.

Finishing Troubles I Have Met and Solved

By C. O'Leary

I HAVE been a foreman finisher for the past 25 years. When I took over this job the other foreman was going out west for his health, so for the first two weeks I continued to do the work the same as he had been doing it. But in those two weeks a lot of trouble developed. The men who did rubbing complained that the finish was too hard to rub and that it contained pinholes, etc. A lot of work that had been previously finished came back.

Upon making inquiries I learned that these troubles had been going on for the past two years and that the foreman could not find any remedy for them. Accordingly, I advised the management that the methods they had been using were unsatisfactory. We called in a representative of the lacquer company, from whom we bought materials, and he admitted that the methods my predecessor had been using were wrong.

This is the way the finishing job had been going: Oil stain sprayed; dry two hours; spray a wash coat; fill with a fast-drying filler that didn't dry properly; dry three hours; spray a coat of sealer and, when dry, sand;

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spray oil shading stain and allow time to dry; then three coats of lacquer; the next day rubbed—three days from the start to shipping room, which I believe is too short a time in which to do strictly air-dry work that must be rubbed.

I recommended that we change to a new method of doing the work, and the lacquer company's representative agreed with me. For three weeks we waited for the lacquer company to send us the right kind of stain.

My boss announced that he was going to put in hot lacquer and that it would be the means of ending our troubles; but when the lacquer company that furnished it tried to demonstrate it, they still got pin holes. They checked over our methods and they also declared that we were using the wrong methods and materials for finishing our mahogany veneered bedroom suites.

During the time I was there I made up a sample according to the right way of doing the work. I showed it to the boss, but nothing was done. I showed him how the old finish chipped off when you hit it with something light, whereas in finising it my way, light blows only dented the wood but the finish didn't chip.

With the old way of finishing, the peeling of lacquer occurred from the shading stain on up. When they shaded with oil shading stain they used too many coats to bring it from cherry color to the Cordovan color. The checking was due to the base stain not being dry, and to shrinkage in the oil filler they used.

Pinholing was caused by the base stain and filler not being dry when the lacquer was sprayed; as a result the oil penetrated the lacquer, causing pinholes.

My way of doing this was to use a water stain or N.G.R. stain of Cordovan color; an overnight filler that dries hard by the next day; then sealer; a lacquer type shading stain (shading it only once); then two or three coats of finishing lacquer. After the last lacquer coat, I would let the work stand two days before rubbing.

Another trouble I noticed with the former method of finishing was that after being rubbed the dry lacquer film became crystallized. This was caused by all coats being "mist sprayed" instead of "wet sprayed".

On their black finish, when it was hit or bumped, the finish chipped off clear to the wood. They used a gray undercoat on birch; then a black lacquer to produce an "ebony" black finish. I have found that it is better to use a dark alcohol-type stain and then stain the wood thoroughly; this will penetrate the wood and really stain it black. Then apply your sealer and lacquer, and you will have no chipping. If the lacquer finish happens to get marred, the damaged surface will still be black.

The materials used by the former foreman were not at fault; they were not intended for this type of work. A well-known lacquer company supplied the materials but the foreman did not know which materials or methods were best suited to this job. He simply ordered the materials without first taking up the matter with the lacquer company to see if they were satisfactory for the type of finishing his firm was trying to do.

Finishing foremen, you can save yourselves and your men and your employers a lot of trouble and expense by confiding in a dependable finish manufacturer's experienced representative. It is to his interest and to his company's interest to help you with the best information and materials at his command. Don't hesitate to ask for his advice or suggestions. If you have a desirable job and a fine reputation, this occasional advice and

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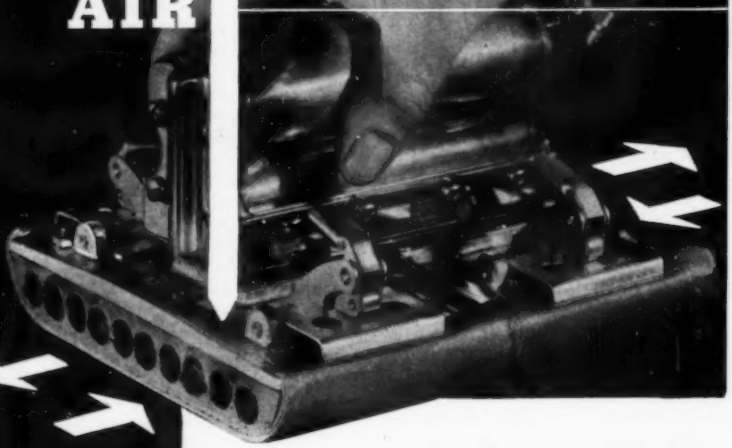

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help from experienced well-informed salesmen or servicemen will help you to keep it. If you haven't such a desirable job or reputation, the help of a good salesman may make is possible for you to get what you lack. After all, you must keep abreast of what is new and profitable and economical, if you expect to be of any value in the finishing game.

Color Identifies Tools Quickly

ONE PLANT that I have in mind has found it expedient to adopt a color scheme for hand tools. The purpose is for quick easy identification by the user. All small portable air-driven tools have blue handles; certain kinds of hand wrenches are orange; other kinds are yellow, and hammer handles are painted red.

Of course the ideal setup would be to keep work benches or work stations clean and orderly at all times, with all tools neatly put back in their proper holders; in other words, never cluttered-up. If this condition were possible perhaps less work would be accomplished, because most of the time would be consumed keeping things straightened out.

So it seems to be a pretty good idea to make identification of small tools as easy as possible. With a little color in the right places any of them can always be found when they are needed.

Ed Sinnett Joins His Brother in Sinnett Lacquer Mfg. Co.

Charles J. Sinnett of the Lacquer Mfg. Co., St. Louis 14, Mo., announces that his brother Ed F. Sinnett joined his firm on June 1st. Ed was formerly General Manager of another lacquer manufacturing company in St. Louis, Mo. He brings to his new company 26 years of experience in the industry.

Power Wire Brushing Semi-Automatic

NEW POWER brushing methods are assisting vacuum cleaner manufacturers to meet the current demand for lower prices, according to a survey conducted among manufacturers of this household product.

An Ohio vacuum cleaner manufacturer, for example, has cut the unit cost of extension tubes, which it supplies with its kit of cleaner appliances, by using a semi-automatic machine in combination with Osborn Monitor wire brushes. The machine, on which is mounted eight 12-inch wire brushes, finishes the metal extrusion to a rich, lasting satin luster in exactly nine seconds. This is faster and cheaper than the former method used. The electrically-powered machine operates the brushes at a speed of 1725-rpm. One set of brushes satin finishes more than 200,000 tubes.

Corrosion Engineers Will Hold Meeting in Dallas

Eight technical papers on various corrosion problems, a panel discussion and various committee meetings have been scheduled for the annual meeting of South Central Region, National Association of Corrosion Engineers to be held at the Adolphus Hotel, Dallas, Texas, on October 3 and 4. Requests for the official program of the meeting are being received by A. B. Campbell, Executive Secretary NACE, at 919 Milam Bldg., Houston 2, Texas.

Trichlorethylene Plant to be Built in Ohio

To manufacture trichlorethylene, the cleaning solution usually used in vapor degreasers, Hooker-Detrex, Inc., Niagara Falls, N.Y., will construct a new plant at Ashtabula, Ohio. It will be located on a 25-acre tract and the estimated cost will be in excess of 1½ million dollars.

Hooker-Detrex, Inc., which is owned jointly by Hooker Electrochemical Co., Niagara Falls, N.Y. and Detrex Corp., Detroit, Mich., has a similar plant at Tacoma, Wash. The Ashtabula plant is expected to be in operation early in 1950.

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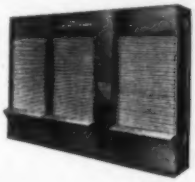
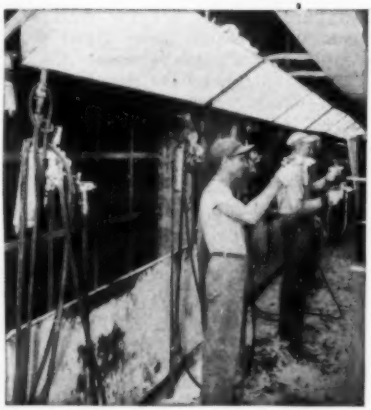


AAF Filters help maintain high quality of finishing operation



CLEAN air, in constant volume, evenly distributed—three important requirements for quality finishing and worker comfort. All are provided for in this operation at the plant of the Gibson Refrigerator Company, Greenville, Mich., through the use of AAF Air Filters.

All make-up air entering this finishing department first passes through a bank of Multi-Duty Self-Cleaning Air Filters for the removal of dust and dirt. The clean air then passes through Type G Drifilters (shown in illus. at left) which insure uniform air distribution over the entire work area plus serving as a secondary cleaning medium.

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More About Flow Coating

As subscribers to your interesting magazine, we would be very much obliged to have supplementary information on the flow coating system described in the following articles.

"Flow Coating Automobile Chassis Frames" by Paul A. Peterson (October 1948 issue, page 78) and "Painting Diversified Metal Products" by K. E. Williams (April 1948 issue, page 50).

We wish to have more detailed information on this system, particularly on the following points:

1) How are the flow nozzles used to spray parts constituted? If possible, give sketch.

2) What is the minimum and maximum distance of flow nozzles to job?

3) How broad is the spray, this to determine number of sprays to paint a part of specified form and size.

4) Is flow coating convenient for all types of paint (bituminous, synthetic enamels, etc. . .) Is it necessary to use different solvents and thinners than for spray painting?

5) We suppose there is no sensible paint loss, but probably a loss of thinner. What is the importance of loss by evaporation? Is it of interest to reclaim the thinners?

You would oblige us to kindly transmit our questions to Mr. Peterson and Mr. Williams, whose answers we should like to know.

In this article on page 52, end of first column, Mr. Williams describes the arrangement of the flow coating machine. Could this gentleman give us a sketch of the flow nozzles arrangement and of different forms installed in this machine?

We apologize for troubling you by asking these questions, due to the fact that these articles are in the first place for American technicians who know these subjects very well and who are able to imagine such systems quite easily when given some simple indications, whereas French technicians must have supplementary information, because this type of facility is still little known in our country.—S.A.U.C., Paris, France.

In reference to the two articles on flow coating, I wrote both articles based on data obtained in the plants named. Articles were credited to Messrs. Peterson and Williams, both of whom approved my manuscripts.

Answering your questions in order:

1) There are different types of flow nozzles for flow coaters. One is bought from spray equipment suppliers; another is made of a combination of pipe and pipe fittings; still another is really not a nozzle, but a ½-in. copper pipe which may be bent in any direction. The end is left at full diameter, or it is partially flattened so that the stream of finishing material will be jetted onto the work rather than flown on. This is necessary to reach some of the recessed parts of some products. Other types of nozzles must be adjusted in like manner to accomplish complete coverage. Selection of nozzles will depend on the type of product to be coated.

2) This will depend much on the type of product. The object is to coat the product completely. For some

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products the nozzle could be only 6-in. away from the surface to be coated. In other cases, especially where there are recessed areas, the nozzle must necessarily be from 12 to 18-in. away from the surface. It is in these cases that the nozzle or pipe end must be partially closed to jet the material the required distance.

3) In some cases where the nozzle or pipe is left at full diameter it will be perfectly round. This is used to flow the material on a flat or round product that has no recesses. In other words, this is simply a flow job. Where recesses occur the stream is sometimes also round. In others, where a considerable area is to be coated, the nozzle or pipe is adjusted to make a fan shape flow. Right here let me say that there is no definite rule in determining the distance the nozzles or pipe ends are away from the work, nor the shape of the flow, nor the adjustment for the length of the stream from the nozzle or pipe. This can only be determined by trial and error; that is, run the product through again and again until all of the surfaces are coated.

4) Flow coating is suitable for any materials that could be used for dip coating. Any natural or synthetic enamels may be flow coated; also a dipping lacquer. The same solvents may be used for flow coating as are used in the dip tank. For instance, in coating the automobile chassis frames they use a black asphalt-base material and three different solvents. During hot weather they use mineral spirits which retards drying slightly. When weather changes and the material dries too fast or not fast enough they use a solvent with a higher flash point.

5) There is very little loss of paint in flow coating; the evaporation of solvents is not as great as the loss which occurs in dip coating where there is considerable loss through surface evaporation. In flow coating the only loss of thinners would be through evaporation and I do not know of any method of reclaiming this loss.

I am sending you a sketch which shows the pipe arrangement of a typical flow coater. Practically all of them follow the same pattern. Some of the nozzles or pipes will have to be bent up or down or from side to side to properly coat the product. It also may be necesary to install a pipe with nozzles at the bottom of the machine, with the nozzles or pipes extending up from the horizontal pipe to coat lower surface areas of the product passing through on an overhead conveyor.

Evans Products Co. uses a metal baffle, semi-circular in shape to confine the "spray" from some of the flow nozzles. This helps to keep the inside of the flow coater clean. Solvents are used to clean the chain as well as the inside walls of the flow coater. Also, you should take precautions to install suitable CO^2 fire extinguishing system, automatically controlled to prevent fire or stop inside flow coater. A suitable exhaust system, with fans of correct capacity, should be installed to carry off fumes and solvents from the flow coater.—P. C. BARDIN, Associate Editor.

In connection with the questions, I will answer them in the order they appear in your letter.

No. 1. Flow nozzles are usually designed for a fan spray. The fluid is forced through an elliptical shaped orifice. Sometimes there is a baffle attached to the discharge point which further spreads the material. We have seen nozzles designed for water successfully used, provided they are intended for fan spray. It is possible to cut a 30° slot with a hacksaw at the end of an ordinary pipe cap and make an excellent nozzle for this

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• All these installations have been uniformly satisfactory . . . floor space saved, production greatly increased, quality improved, better housekeeping effected . . . and unit costs substantially reduced.

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purpose. Sometimes the end of a pipe is cut off at about a 45° angle, a flat sheet is welded over the end of the mitered cut in such a manner as to have a slot at the further end. In this way the paint will spread over the flat sheet in a fan shape.

In designing any type of nozzle, it is desirable to spread the paint as wide and as thin as possible without too much break-up. A thin enrobing effect is the ultimate desirability. There are many commercial nozzles available for this purpose. We have found Spray Engineering nozzle, Style No. 187F, used successfully with a variety of coating materials.

No. 2. The limiting factors would be the coating of the object. We have seen the work done successfully as far as 2-ft. from the spray nozzle and as close as 6-in. In our opinion, an effort should be made to design the machine with a minimum distance of 10-in. from the nozzle orifice.

No. 3. The object of the spray is to have it as thin as possible and as wide as possible without undue atomization or too much air mixture with the fluid. It is desirable to have a sufficient number of sprays to cover the article twice. The number of sprays would depend strictly on the size of the article, the width of the fan, and the distance from the work. This has to be charted for each article that is flow coated.

No. 4. Most all types of paint or coating materials can be applied successfully for certain products with the flow coating method. It is usually necessary to use slow drying solvents or thinners. It is desirable to have a material that will successfuly dip or flow before attempting the flow coating method. In our opinion it is absolutely vital to make a test with ordinary dipping material before any consideration is made for flow coating. Flow coating is basically intended to reduce the amount of coating material in operation where a dipping job is satisfactory.

No. 5. There is considerable thinner loss in every flow coating job. It is usually necessary to have a more elaborate exhaust system than for dipping, and the loss of solvent is in proportion to the amount of air that is released around the paint flow in the process. We have never seen a system where sufficient solvent was used that reclaiming equipment could be justified. For the ordinary user, this is out of the question. If the operator keeps his fluid pressure at a minimum that will still coat the work, solvent loses may be held down to a cost that will offset the disadvantages of a dip tank. This disadvantage is that usually the paint has to be thrown away at certain intervals, while in a flow coating machine it is unlikely that any paint is ever lost.—BYRON MORRILL, Morrill & Renshaw, Inc., Chicago 22, Ill.

Honduras vs. African Mahogany

Regarding the Question & Answers about finishing Honduras and African Mahogany, as published in May 1949 issue, I have had the following experience along this line:

During the last war I had more types of wood sent to me for finishing than I had experienced in the previous 30 years. Any lumber that was available was purchased and used.

At first I threw up my hands and said, "This can't be done". However, I finally decided that a good finish was essential in spite of the objectionable woods that were available. I finished many types of mahogany, including African, Honduras, etc. Now they are all the same to me from a finishing standpoint. Regardless of the angle or depth of the pores,

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

• FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

if the following steps are carried out, a good level finish can be obtained.

First, use high air pressure to blow all sanding dust out of the pores; this is extremely important. Second, apply a thin wash coat of sealer to protect the filler from striking in and causing dark streaks in spongy spots. Third, sand. Fourth, again blow dust out of pores. Fifth, brush on filler with a circular motion, working it into the pores.

I have found an exceptionally good one-hour filler made by a large manufacturer of finishing materials. Many fillers are not satisfactory.

In cleaning off the filler I find that a superfine excelsior is very good, as it cuts the filler to surface level, rather than pulling. This is done in a motion that is against the grain and circular, never with the grain. Tow or a rag can be used for the final wiping.

With this process I have omitted the staining operation which may be done before or after the wash coat is applied, depending on type of article to be finished and nature of stain.

I have had bad African and bad Honduras mahogany, but they all look alike to me now. In the Question, the mention of "after the filler and lacquer began to settle" means only that the filler was not hard before the next coat was applied. An oil or pigment stain can soften filler and must be allowed ample drying time before a sealer coat is applied.

Whenever filler is used, each coat before the lacquer must dry properly. There can be no rush drying methods. In humid weather allow extra drying time.—JOE PETERSON.

Portable Glossmeter

A portable device for accurately measuring the gloss of coated surfaces for comparative tests, etc., is announced by the Henry A. Gardner Laboratory, Inc., 4723 Elm St., Bethesda 14, Md.

Random Comment on the Industrial Scene

(Continued from page 7)

is now under construction at Prince Rupert, B.C., the Celanese Corp. of America announces.

Less than half as thick as the conventional masonry wall, the novel assembly overcomes operating problems in manufacturing sections where high humidity is a factor, and requires a minimum of maintenance. Full-sized panels have been satisfactorily tested. Similar typical jobs were thoroughly studied before panel wall designs for this important production unit were completed.

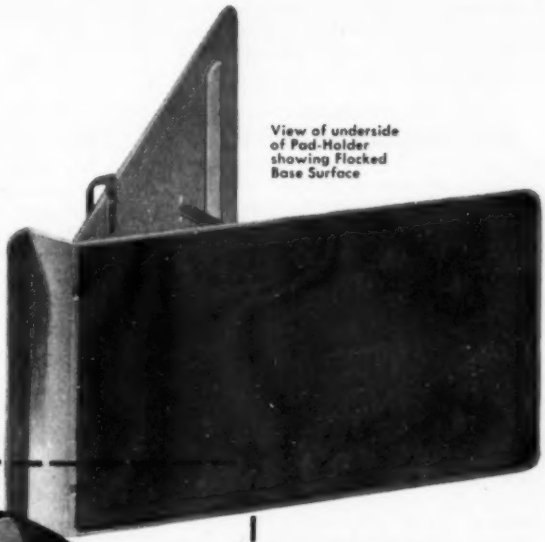
The walls are to be installed in panels designed by Celanese Corp. of America, and the construction details are expected to result in considerable savings. The walls can be re-used for building expansion by removing the panels and erecting them, thereby giving flexibility to design plans of the present and future.

* * *

Packaged Bathroom. Now you can add a complete, modern, bathroom to your home without sacrificing living space—and you can install it exactly where you want it, regardless of present room arrangement. Ad-a-Bath, a fully-equipped packaged bathroom, can be added as an extra room to any home which has electricity and running water.

Ad-A-Bath is a complete room—including walls, floor, and roof—with bathroom fixtures, plumbing and wiring already installed. The entire room and equipment are factory-built and can simply be placed on a permanent foundation and attached to the existing house. Ad-a-Bath can be installed for 30% to 40% less than a bathroom built in conventional manner. Four simple utility connections

The Base Plate of this STENO PAD-HOLDER* is *Mar-proofed* with FLOCK



View of underside of Pad-Holder showing Flocked Base Surface

Upright Position

*Item pictured is "The Stellar Steno-Pad-Holder" (patented), manufactured by Stellar Tool & Mfg. Co., Inc. of Jamaica, New York. Flocking—Bestcraft Products Co., Inc., New York City

Flock Finishing Operation Doubles for Felt —*and Saves as it Serves!*

Here an inexpensive Flocked Paper lamination eliminated any possibility that this stand would topple, slide or scratch. Manufacturer also reports this flocked feature as being helpful to the item's market acceptance.

Available at paper merchants, flocked stock for finishing operations is at its best when processed with long stapled, uniform quality Claremont Flock. We also supply this medium in bulk, in colors, in quantity for special spray-on finishing purposes, surface coatings, insulation and decorative uses. Write for samples, color charts and complete details. Inquiries invited!

CLAREMONT WASTE MFG. CO.

CLAREMONT, NEW HAMPSHIRE

take care of plumbing and wiring, and a special system of joining connects the entire room securely and permanently to the house.

* * *

Safe Candy-on-a-Stick. Increased safety of the Toy Pop is accomplished through the use of flexible Bakelite polyethylene for a handle that bends on the slightest impact. The flexible plastic safety sticks are made in a variety of designs, such as animals, letters of the alphabet and other characters. The ordorless, tasteless and non-toxic stick is flat, without a point or any sharp edges.

The new polyethylene handle is so designed that the candy cannot be removed until all of the candy has been eaten. When the candy has been eaten, the handles are devoid of stickiness and serve as child collector's items. The variety of colors and designs of the plastic handles stimulates trading and collecting of handles and a familiarization of the young user with the alphabet, numbers and characters represented.

* * *

Factory Posters. Do factory employees read educational bulletin board posters? If the poster program is well organized and presents a positive theme, the answer is yes, reports SKF Industries, Inc.

This was the conclusion drawn from a sample survey made recently by the ball and roller bearing company on the effect of a 10-month poster campaign designed to further a better understanding of the American system of free competitive enterprise.

Interest in the posters which explain the benefits of free competitive enterprise and relates these to the employee's self-interest in more efficient productivity, increases as the campaign progresses, the survey revealed. A specific subject is presented each month and posters are changed each week.

* * *

Worker's Health. A breadwinner's health is a strategic commodity. It affects his income, his family's welfare and his community's prosperity. It also influences his employer's production, labor turnover and profits. Practical ways have been found to eliminate on-the-job hazards and to protect the worker's general health. Foresighted employers are quick to put this "know-how" into action in their plants . . .

Binks Gets Safety Award

One million man-hours work time without a disabling injury in the entire period. This enviable record has been achieved by the Binks Mfg. Co. of Chicago, Ill. An appropriate plaque commemorating the event was presented to Burke B. Roche, president of Binks, by W. D. Keefer of the Lumberman's Mutual Casualty Co.

According to records of the National Safety Council, only 6 out of 1000 industrial plants in the country are able to operate one million man-hours without a lost-time accident. Only by strict adherence to established safety rules is this record approachable.

In the case of Binks, who manufactures precision spray painting equipment, more than average safety vigilance was required. A co-ordinated safety program was established and enforced through the direction of the shop foremen.

Du Pont to Build New Finishes Laboratory in Philadelphia

Plans to build a $2,000,000 finishes research laboratory in Philadelphia, Penna. were announced recently by the DuPont Company. It is expected the building will be ready for occupancy late in 1950.

The new building program reflects the decision of the DuPont Company to expand and improve its facilities for research and development in the field of paints, varnishes, enamels, synthetic resins, and other finishing materials. The new laboratory also will be available for users of DuPont finishes who desire to solve actual production problems, or try new finishing recommendations. DuPont has other finishes research laboratories at Parlin, N.J., and Flint, Mich.

NEW PERIOD
Production Finishes
BAKING ENAMELS
LACQUERS SHELLAC
ENAMELS FILLERS
SEALERS SUPPLIES
PRIMERS STAINS
SYNTHETICS VARNISHES
There Is No Substitute for Quality
NEW PERIOD FINISHES HAVE MAINTAINED A HIGH STANDARD OF QUALITY FOR OVER 32 YEARS
FILLERS and STAINS—New Period has long been famous for its quality Fillers and Stains. Unequaled color-matching service.
LACQUERS—CLEAR & SEMI-GLOSS. Uniform and dependable—Suitable for coating almost any surface—Provides more coverage and unusual mileage. Cuts costs and maintains quality.
SEALERS—Provides excellent body, dries fast and sands easily.
LACQUER ENAMELS—FLAT & GLOSS. Available in a wide variety of matched colors and shades. Widely used by leading manufacturers in many different industries.
SYNTHETIC ENAMELS—A durable and trouble-free finish for fast production. Built to meet the most exacting requirements.
Remember New Period Finishes for Quality and Service
MANUFACTURERS OF FINE WOOD AND METAL PRODUCTION FINISHES.
NEW PERIOD
Production Finishes
NEW YORK WOODFINISHERS' Supply Co.
109 IMLAY STREET BROOKLYN, N. Y.

New Fungicide Varnish

Brooklyn Varnish Mfg. Co., 50 Jay St., Brooklyn 1, N.Y., announces Tuf-On No. 76-S, a fungus and moisture-resistant finish. It is recommended for use in protecting electronic and electrical equipment, and conforms to Army specifications 3-210.

This phenolic-resin-base material offers exceptional resistance to moisture, acid, alkali, salt spray and fungi. Samples and application data are available on request.

Relative Humidity Indicator Has a Fan Attachment

Accurate humidity readings can now be obtained quickly in factories, shops, rooms and even small, confined spaces near or in operating machinery. A motor-operated fan has been developed for attaching to any Weston Relative Humidity Indicator.

The small fan, powered by dry cells, will move air over the indicator's wick in sufficient volume to permit obtaining stable readings within 30 seconds. This makes possible complete analysis of humidity conditions in and around the machinery while it is operating, thus enabling the adjustment of the humidifiers and air-conditioning equipment for best results. No calculations are required, as readings are immediately obtained on the instrument's simplified slide rule.

Weston Relative Humidity Indicators are available with or without the auxiliary fan. Product of the Weston Electrical Instrument Corp., 617 Frelinghuysen Ave., Newark 5, N.J.

Spot Putty for Metal

Duratite Metal Surfacers (No. 1 and No. 2) are new companion products to Duratite Wood Dough and Surfacing Putty, manufactured and sold by Webb Products Co., San Bernardino, Calif., and Norcross, Ga. These metal surfacers are usually applied with a flexible putty knife to fill and smooth out file marks, nicks, dents, scratches and deep mars of any kind in the metal—bare or finished. This gray waterproof spot putty and surfacer adheres perfectly to clean dry metal and can be successfully knifed to a feather edge. After the filled surface is dry it can be sanded smooth and even with the surrounding area, wiped clean and then painted over with the usual finishing materials. Container sizes range from ½-pint to one gallon.

New Steam Jet Cleaner

The Speedylectric JC-30, announced by Livingstone Engineering Co., 100 Grove St., Worcester, Mass., uses high pressure steam mixed with the proper amount of detergent at the jet. There is no excess water to dilute the detergent or flood the working area. Boiler and jet are under constant fingertip control of the operator. This

When thinking of Names, Remember . . .

SPRUANCE QUALITY

SINCE 1906

SPRUANCE has meant QUALITY for 43 years.

SPRUANCE materials assure perfect control, from formulae to finished products.

SPRUANCE products provide beauty and protection.

SPRUANCE uniformity and dependability are acknowledged throughout the trade.

SPRUANCE is equipped to deliver according to your specifications.

SPRUANCE primers, undercoats and finishes are a credit to their users.

SPRUANCE is proud of its reputation – your greatest safeguard.

SPRUANCE is the name to remember when you are in the market for finishing material.

SPRUANCE QUALITY is still supreme – always will be.

THE GILBERT SPRUANCE CO.

MANUFACTURERS OF

FINISHES FOR WOOD AND METAL

RICHMOND AND TIOGA STS. PHILADELPHIA 34, PA.

new unit features a pressure tank, assuring positive flow of detergent. High ceilings, tall machines, and large equipment may be steam cleaned with this equipment.

There are no coils or tubes to scale or burn out; no motors, pumps or moving parts to wear out. Since sparks, flames and fire hazards are totally eliminated, the Speedylectric JC-30 can be safely operated in paint works and chemical plants.

"Amerstain" (Dry Staining)

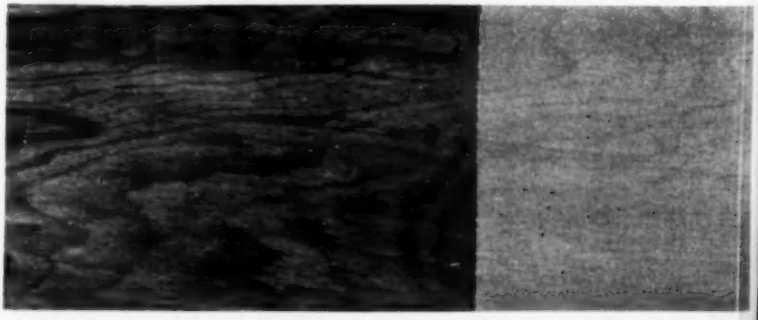
The Amerstain method, developed by the Lehwood Corp., 1703 S. Ironwood Drive, South Bend, Ind., is a method of dry staining wood surfaces to be finished. Dry pigments, the same as used in liquid pigment wiping stain, are mixed with a dry vehicle or carrier such as finely ground nut shells, synthetic granules or other type of material. The proportion of mixture is approximately 200 parts of carrier or vehicle by weight to one of stain pigment. This proportion varies according to the carrier used and the depth of color desired.

The mixture of dry stain and dry vehicle is then blasted or projected by means of centrifugal force, compressed air or low pressure blower onto the wood surface to be finished. This blasting takes place inside a ventilated cabinet similar to a spray booth, either by manual or automatic mechanized means.

Millions of particles of pigment are deposited on the wood surface by the carrier in a matter of seconds. Any pigment not deposited on the wood is reclaimed and recycled back with the carrier. The amount of pigment actually consumed is small.

Hard textured panels receive the same amount of pigment as the softer ones; this produces uniformity of staining. The article is then removed and sprayed with sealer, generally of the lacquer type. Solvents in the sealer coat disperse the stain pigments and draw them deeply into the pores and interstices of the wood. The dry staining helps to produce a beautiful finish rapidly and economically.

The process of Amerstaining is carried a step further to produce a finish known as "Amergrain". By this method the natural grain of discolored, sap-stained and mineral-streaked wood can be finished in blond, wheat or any desirable tone or color. An opaque coat of white is first sprayed on to hide all discolorations. This white undercoat is a



In the Amergrain process, all objectionable stains and colors in unselected woods are uniformed to a light even tone—blond or tinted—but the natural grain still shows

4

TYPES OF SYNTHETIC FLAT FINISHES TO CONFORM TO YOUR NEEDS . . . POCKETBOOK

DRYING SCHEDULE

- **FULL RANGE OF SHEENS . . .** from dead flat to gloss
- **NO DULLING OR CLOUDY FLATTENING AGENTS** added
- **A BEAUTIFUL RUBBED EFFECT . . .** will rub clean and clear
- **WILL EITHER AIR OR FORCE DRY**
- **OUR SUPERIOR PROCESS IN CHEMICALLY TREATING RESINS DEVELOPS A FINISH SO SMOOTH . . . YOU CAN FEEL THE DIFFERENCE**

1. **PERLAC SATIN FINISH** . . . out of the dust in 5 to 7 minutes . . . one coat looks and rubs like two coats of lacquer . . . liquor proof . . . water proof . . . won't haze or sweat back.
2. **PERFEX SATIN FINISH** . . . quick set . . . quick dry . . . water proof . . . liquor proof . . . full smooth body . . . won't haze or sweat back.
3. **PERFECTION SYNTHETIC FLAT FINISH** . . . water proof . . . liquor proof . . . beautiful rubbed effect.
4. **PERFECTION QUICK DRY FLAT VARNISH** . . . beautiful . . . rubbed effect . . . or rubs well . . . smooth.

PERFECTION PAINT & COLOR COMPANY

715 E. Maryland St., Indianapolis 2, Indiana

Perfection SYNTHETIC FLAT FINISHES

WATER-PROOF LIQUOR-PROOF

thin, tough, high-hiding and low-solid-content material. After drying, the coated surface is blasted in exactly the same way as described for dry staining. Pigments and carrier are mixed in any selected proportion to give the desired tone or color.

Wood grain and figure are reproduced in their exact design and texture on top of the white coat. By modified relief and variation in texture, the wood grain is reproduced by the Amergrain process, in any desired color including blond, wheat or the light pastels. Clear coatings such as sealer, lacquer and varnish are then applied in the usual manner.

Strippable Plastic Coating

Spralat is the name of a viscous water-base compound that may be applied with pressure type spray equipment to form a tough protective film. It will protect the surface of products in factories and in shipment against damage from overspray, dust, dirt, grease or scratches.

The film can be easily peeled off by hand after it has served its purpose. A letter to Spraylat Corp., 1 Park Ave., New York 16, N. Y., will bring you an illustrated pamphlet.

Automatic Lubricator For Overhead Conveyor Wheels

It is possible to automatically lubricate both trolley wheel bearings of an overhead conveyor without any oil drip.

The two gallon oil reservoir may be located eight inches above the bearings. As the wheels pass by they trip a trigger which releases jet of oil fogged air directly into the wheel bearings. Operation of the lubricator is adjustable.

The lubricator is made by J. N. Fauver Co., 49 W. Hancock, Detroit 1.

Electric Paint Remover

A new, quick and completely safe Electric Paint Remover is now being manufactured by the B & L Tool Machine Co., of Plainville, Conn. The Electric Paint Remover can be used indoors or out, by a professional painter or amateur and will remove paint from flat surfaces as well as from curved or irregular surfaces such as on boats or mouldings.

Causes film of paint to blister and soften.

The unit weighs slightly more than one pound, including cord. It is used like a flat iron and causes the paint to blister and soften so that it can be removed easily with a metal scraper or wire brush. This provides a smooth, clean surface for the new coat of paint and insures a "like new" appearance.

The heavy gauge reinforcing shield of steel on top prevents buckling, adds strength, and prevents accidental contact with the hot metal case below. All electrical terminals are completely protected—absolutely no chance of shock or short circuit.

Aeroil FLAME GUNS

Finished with . . .

KIRCO ONE COAT AIR DRY SYNTHETIC ENAMEL

The Aeroil Products Co. of Hackensack, N.J., well known manufacturers of Flame Guns and other metal products, that receive rugged use, submitted their finishing problems to Kirker Laboratories. Result . . . They have standardized their finishing production operations with Kirco Modern Coatings.

Aeroil Flame Guns are finished in red and green with no primer nor special surface preparation. Kirco one coat air dry synthetic enamel dries to handle in forty minutes. It is attractive, extremely durable, economical and easy to apply.

A working sample will prove it's worth to you.

KIRCO MODERN COATINGS

KIRCO Modern Coatings are delivering trouble free performance to prominent manufacturers of metal, wood, plastic and glass products.

Kirker CHEMICAL COMPANY

ONE EAST ELEVENTH STREET • PATERSON 4, NEW JERSEY

Metal Parts Washer

Detrex Corporation, Detroit 32, Mich., has added a series of new metal parts washers to its present line.

These new washers feature standarized construction so that multiple wash, rinse and dry-off stages may be incorporated at minimum cost. They are designed so that if only spray stages are installed originally, a blow-off stage may be added later.

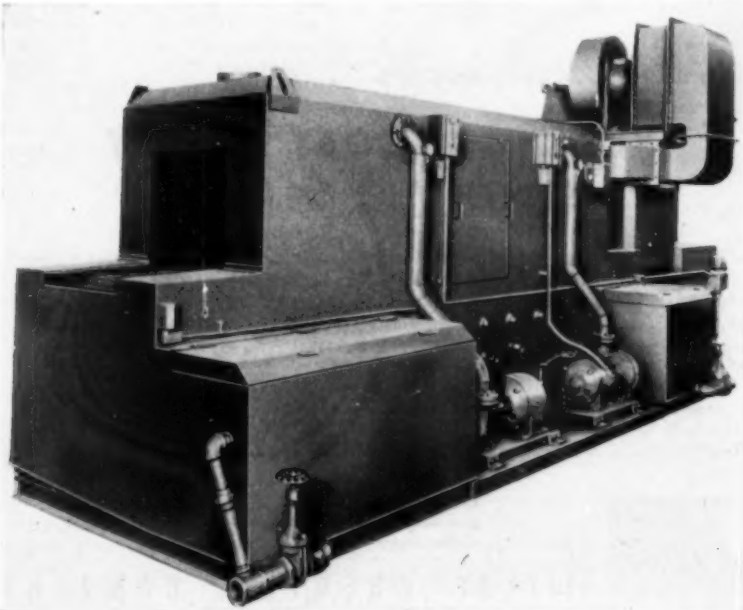
These machines, the WB-100-S single spray zone unit and the WB-200-S 2-spray zone unit, may be used as standard metal parts washers for ordinary alkali cleaning compounds, or they may be easily converted to handle compounds that have a tendency to foam excessively.

The work is pressure sprayed with cleaning solution from rigidly supported multiple spray headers. Spray nozzles are readily accessible for cleaning, and are adjustable for direction to any given point.

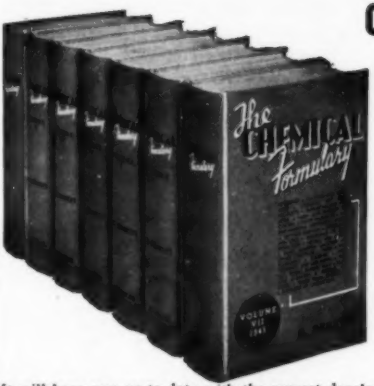
The blow-off stage for both single and double spray zone machines may be steam or gas heated, or built to give cold air blast, whichever is required.

Paint Kills Insects

Sonoco DDT paints and varnish are available. The coating is said to kill all kinds of insects on contact. DDT is incorporated into the base of the paint during its manufacture. When the paint is applied to a sur-



Two spray zone washer with belt conveyor and blow-off section; both are steam heated.



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Drugs	Bleaches	Oils & Fats	Fibres	Waterproofing
Farm & Garden	Ceramics	Liquors	Beverages	Metals
Specialties	Deodorants	Dyeing & Coloring	Flavors	Alloys
Resins	Disinfectants	Fluxes	Rustproofing	Glues
Cements & Concrete	Laundry	Explosives	Metal Treatments	Pastes
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INDUSTRIAL FINISHING Magazine

1142 North Meridian Street **Indianapolis 4, Ind.**

face the DDT migrates slowly and uniformly to the surface, and being a part of the film, it remains anchored there.

If the film is wiped, or if surface crystals are removed by insects, light brushing, etc., new crystals will reappear again and again. The film continues to be toxic after washing with soap and water.

Tests indicate the film to be lethal to flies after more than three years. It is available in flat wall paint, gloss enamels and varnish.

For further information write Sonoco Products Co., Department PL, Hartsville, S.C.

New "Sharpe" No. 11 Flock Gun

This new type of flock gun shown here is designed to spray all types of flock and practically all forms of powdered or granulated materials. It can be adjusted for conical or fan type spray by means of valve No. 2 and requires about 6-cu. ft. or more of air, which is governed by operator.

Two sizes of aluminum cups are available with this gun, a 2-quart and a 1-gallon size. These cups are held in place by "C" clamps on the sides of the frame which are easily secured to the bayonets on the cup. It is a product of Sharpe Mfg. Co., 1224 Wall St., Los Angeles 15, Calif.

Sprays flock from attached container.

Curved Metal Belt Conveyor

The Flat-Flex power belt conveyor can travel around almost any desired curve. Through the use of a patented chain, a balanced weave wire mesh belt is guided around almost any curve. Wear on the edges of the belt is eliminated because they do not drag against the guides.

A flat curved conveyor is often useful.

This conveyor may be used in conjunction with other flat conveyors, or the entire conveyor including straight and curved runs may be continuous.

For specifications write The Leeds Electric & Mfg. Co., Hartford, Conn.

Strong Adhesive

Designed for use in automatic machines, Impervo 44 is offered by National Adhesives, 270 Madison Ave., New York 16, N.Y.

It is said that best results are obtained by applying a thin film. The adhesive sets rapidly so that labeled containers can be nested immediately without suffering from label slippage or scuffing.

A Quick, Smooth, Uniform coating—assured by
BARRETT GALVANIZING AND HOT TINNING CENTRIFUGALS

BARRETT CENTRIFUGAL GALVANIZER is driven with high torque head and has an equalized disc brake for quick stop.

With the Barratt Whizo Galvanizer, excess metal is quickly removed from small parts after dipping in molten metal, in fact, much faster and more uniform production is assured. Parts will also pass the most rigid inspection for quality.

The method of handling is simple and easy. Work to be coated is placed in a round basket and submerged in molten metal. When thoroughly heated, the basket is placed in the Barrett Centrifugal to be immediately accelerated to high speed, the excess metal being thrown off before it can cool.

A quick pick up and stop (from 2 to 3 seconds each) assures maximum production with an even thickness of coating.

Machines furnished with or without heated surrounding drum, in capacities from 40 to 240 loads per hour, handling from 5 to 100 lb. loads. When used for thinning threaded work, rethreading has been found to be unnecessary.

Barrett Centrifugals are used extensively, combine speed with convenience of operation and the utmost in safety. They are highly developed to meet all reasonable requirements, have self-contained motor drive and occupy a minimum of floor space.

Send at once for full details of Barrett Centrifugal Galvanizer

THE LEON J. BARRETT COMPANY
Designers and Builders of Centrifugal Machinery
1703 GRAFTON ROAD WORCESTER 1, MASS.

SLASH MAINTENANCE COSTS!
by using
PLASCOTE NO. 1
The new peelable plastic boothcoating.

- Actual using reports prove Plascote No. 1 will cut booth cleaning time in half.
- It is applied quickly and easily by use of ordinary paint spray equipment, or by brushing.
- Shipped ready to apply, no pre-mixing necessary.
- Inflammable over-sprayed paints may be peeled from the spray booth walls in large sheets.
- Economical to use due to extensive coverage per gallon.

TEST SAMPLE OFFER:
Order 5 gallons, at the drum price of $1.95 gallon.

CHEMCO PRODUCTS COMPANY, Inc.
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New Edition Ready

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The long-awaited revision of the National Paint Dictionary is now ready for distribution. This is the third edition by its author, Jeffrey R. Stewart. The size of the book has been reduced to 6x9-in. to meet popular demand, and to facilitate its use in a standard library shelf. The number of pages has been increased from 216 to 704, and a type face has been used which provides maximum legibility.

The terms included in this dictionary may be divided into six categories (though the largest proportion falls into the first two groups) as follows: 1) industrial raw materials used in the production of paints and allied products; 2) trade names of raw materials and certain finished products; 3) terms describing processes, methods, systems, etc.; 4) terms denoting scientific instruments used primarily for evaluation purposes; 5) terms denoting colors, optical effects, textures, etc., and 6) miscellaneous terms which give general information to the reader, jargon expressions peculiar to the industry, etc.

Copies of this new reference book are priced at $7.50 each, cash with order.

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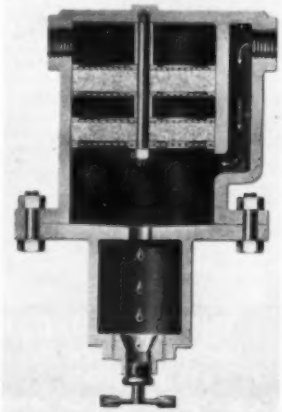
For dry clean air at the point of use, there is available a separator called the Murphy Paragon-C. Designed for installation in the air line just ahead of the point of delivery, air passes through a strainer cartridge, then through cotton felt pads to remove all moisture, oil, grit, etc. The strainer cartridge may be removed for cleaning with solvent. Separators are available in two sizes.



Cleans compressed air effectively.

For detailed information write Jas. A. Murphy & Co., Fifth and Vine Sts., Hamilton, Ohio.

Recording Viscometer

A new recording viscometer, by which viscosity of the liquid material being measured is recorded on a 24-hour chart, is announced by Norcross Corp., 247 Newtonville Ave., Newton 28, Mass.

The recording viscometer measures with extreme accuracy the viscosity of all solutions at atmospheric pres-

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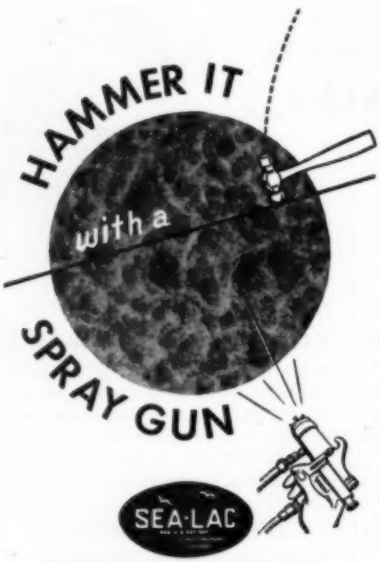

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Portable Electric Sander

National Air Sander, Inc., Rockford, Ill., announces an electrically powered sander. The new Model 5000 "*Electric*" is a production sander for heavy use. It is driven by a 115-volt AC-DC, ¼-hp. continuous-duty electric motor. It weighs 7-lbs., and has 38-sq. in. of abrasive area. It has all of the outstanding patented features of the popular air-driven National Sanders. It is vibrationless and runs cool under all conditions. A 200-lb. man can put his full weight on the machine without affecting its operation. The Model 5000 comes in a convenient metal carrying case.

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For information write Sharpe Mfg. Co., 1224 Wall St., Los Angeles 15, Calif.

Multi-Barrel Tumbler for Mass Finishing

Something new in tumble finishing is offered in the Multi-Barrel Tumbler by Hungerford Corp., Big Flats, N.Y.

With this equipment, up to 15 different items can be tumbled at the same time, without mixing, and each can be tumbled in the manner best suited to its requirements. The variables include wet and dry tumbling, a wide range of speeds; rotary, centrifugal and end-to-end actions, and combinations of these actions.

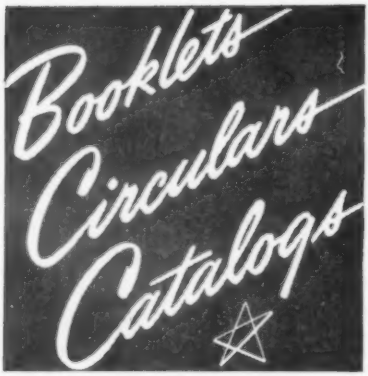
Although it was designed for deburring and polishing small parts, this equipment can be used for tumbling small parts of metal, wood or plastic which must be coated in various colors.

Air Line Filter

The Cuno Engineering Corp., 90 S. Vine St., Meriden, Conn., presents the Mirco-Klean air line filter.

It is easily installed by making only two line connections, and is said to remove all entrained moisture and oil, dirt, scale and rust particles down to one micron in size.

A series of baffles and a felted fiber cartridge, which is resinous treated, does the work. It is available in different sizes.



Abrasive Paint Bulletin

Frost Paint & Oil Corp., 1209 Tyler N. E., Minneapolis, Minn., offers a 4-page bulletin on application, adaptability and economy of Sure-Foot non-slip, abrasive paint. Also included are data on coverage and typical uses for this paint.

French Finishing Materials

A small folder from Star Chemical Co., Inc., 4500 W. Cermak Road, Chicago 23, Ill., lists three "Frenching Materials"—Nu Glo (blond or regular), Satinol (stadull French polish) and Wil-Pro (French finish). These materials come ready to use and do not require oil in connection with their application.

Finishing Book Free

A new booklet "Dedicated to Finer Finishing" contains 20 pages 5¼x8¼-in., in which are illustrated and described materials, methods and supplies for finishing, repair finishing and refinishing fine furniture and cabinet work—both modern and antique. The booklet is published by Finishine Laboratories, Inc., 627 Tallman St., Syracuse 4, N.Y.

New Method of Tank Heating

A new method of tank heating apparently has many advantages over pipe coils as heat transfer units. Such things as dumping the tanks to make repairs and extensive maintenance procedures are unnecessary with this new method. A lightweight, embossed plate called a "Platecoil" is used to carry the heating solution. It has a high BTU capacity per square foot area and therefore takes up little space in the tank according to a bulletin just released by the manufacturer.

"Platecoil" can also be used for cooling high temperature solutions. This bulletin shows how easy the Platecoil is to install and maintain. It contains a complete description and all specifications. A copy will be mailed free on request to the Kold-Hold Mfg. Co., Lansing 4, Mich.

Catalog of Finishing Supplies and Cabinet Hardware

A new catalog of 212 pages, 8½x11-in., illustrates and describes a complete line of "Finishine" materials and supplies for finishers, refinishers and cabinet makers. A 21-page cross-reference alphabetical index lists about everything from abrasives to zippers—that is everything used by those for whom the catalog is intended. Directions for ordering and order blanks are included. For a free copy write Finishine Laboratories, Inc., 627 Tallman St., Syracuse 4, N.Y.

Bulletin on Spray Guns

Binks Mfg., Co., 3114 Carroll Ave., Chicago 12, Ill., has prepared a bulletin to simplify the selection of spray guns used in connection with their new D P Portable Spray Painting Unit.

Selection possibilities come under three headings: 1) for all round painting, 2) for maintenance painting, 3) for fine finish work with quick-drying materials. Copy will be sent on request.

Folder on Portable Sanding and Rubbing Machine

Sundstrand Machine Tool Co., Rockford, Ill., offers an 8-page folder which describes the firm's portable sanding, rubbing and polishing machines. Specifications of the various models are shown as well as information on the use of the different machines. When requesting a copy ask for the Speed-Up folder.

Cost Figures on Emulsion Cleaning

The Du Bois Co., Cincinnati 3, Ohio, has just published a new booklet which contains cost figures taken from actual plant operations on the use of emulsion cleaning compounds.

The initial charging of an emulsion cleaning washer may be much higher than alkaline materials, but plant runs indicate that this is not a true gauge of final cost. Hard water and heat stability, plus a large soil capacity, may make added

charges so infrequent as to give cheaper cleaning with an emulsion than is possible with any other type compound used in industrial washing machines.

Another interesting feature is a case history describing the use of "Mul" as an additive to caustic and alkaline stripping baths to give more complete removal of paints and lacquers. "Mul" is a new solvent and emulsion cleaning compound recently developed by the DuBois laboratory for use in industrial washing machines, as an additive to alkaline cleaning and stripping baths, for machinery cleaning and rust inhibiting.

Synthetic Resin Charts

Revised charts listing available Hercules Powder Co. synthetic resins and their properties are now available. One chart lists synthetic resin solutions only and the other includes resins available in solid and solution form.

Information on the charts, which are 8½x11-in., includes trade names of the resins, brief chemical descriptions, and typical test data such as acid number, color, softening point, and viscosity ratings. Hercules' address is Wilmington, Delaware.

Roller Coating Booklet

A 24-page booklet entitled "Blueprint for Industry, Part V," is offered by Industrial Ovens, Inc., 13825 Triskett Rd., Cleveland 11, Ohio.

The booklet illustrates and describes units and systems for handling and processing textiles, papers and foils. Also included are various types of coaters, dipping machines, drive rolls, oven units, tensioning devices and system drives.

Copies of the booklet are free, by writing on business stationery.

Pearl Essence Bulletin

A 4-page, 8½x11-in. bulletin published by The Mearl Corp., 153 Waverly Place, New York 14, N.Y., contains illustrations and authoritative information about Pearl Essence and Pearl Lacquers for use as lustrous decorative finishes on a variety of products made of different materials. Pearl Essence has been in use for more than 300 years. It is non-toxic and non-corrosive.

New Booklet of Equipment for Cleaning, Finishing and Baking

A new 12-page illustrated booklet "Mahon Industrial Equipment" is just off the press. This booklet covers complete finishing system for enamel, lacquer, paint and varnish; spray pickling equipment;

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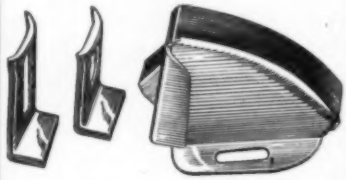

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metal cleaning and rust-proofing equipment; dry-off ovens; filtered air supply system; hydro-filter spray booths; drying and baking ovens; dust-collecting systems, and numerous other units of special production equipment.

The 8½x11-in. pages are printed in two colors and attractively illustrated. For a free copy, write The R. C. Mahon Co., Detroit 11, Mich., or Chicago 4, Ill.

Cleaning Compound Metal

A complete manual describing Permag 168, a non-corrosive, non-inflammable cleaning compound has been issued by Magnuson Products Corp., 50 Court St., Brooklyn 2, N.Y.

The manual contains information on various uses for the compound and tables showing the cleaning operation, concentration to be used, and directions for application—all broken down into different classifications of industrial cleaning. Copies will be mailed upon request.

Roll-it-on Striping Tool

Beugler stripers (no clogging, no drip, easy to use and clean) and striper kits (three models) are illustrated and described in a new catalog page published by Beugler Mfg. Co., 4318 W. 2nd St., Los Angeles 4, Calif. These stripers will not only apply color stripes for decorative effects and identification, but can be used to lay down stripes of glue and liquid cement. Various types and sizes of guides are included in the striping kit. The stripe is rolled on with a wheel which takes its liquid coating from a small fountain.

Viscosity Control Paint Heater Bulletin Ready

A new 4-page, 8½x11-in. folder gives complete information, with illustrations and specifications on the Vicon Viscosity Control Paint Heater which is being distributed by Industrial Sales Co. of California, 455 S. Fair Oaks Ave., Pasadena 1, Calif. Models are shown with and without the paint recirculating feature; one model has two complete separate coils and recirculating system, making it possible to spray two different colors at the same time.

Metal Cleaning Free Book

A new booklet of 24 pages 8½x11-in. describes and illustrates methods, materials and equipment for cleaning all metal surfaces (including removal of paint) and phosphatizing some of them in preparation for new high quality painting or finishing jobs. Making paint stick to galvanized and zinc plated surfaces is

one of the subjects included in this interesting and informative booklet. Ask for a free copy of the book at any Turco Products, Inc. branch office, or at the main office and factory in Los Angeles 1, Calif. (6135 S. Central Ave.), or at the Chicago 9, Ill. branch (125 W. 46th St., P.O. Box 2064).

Booklet on Coated Abrasives

"The Finest In Coated Abrasives," is the name of a 32-page, 2-color booklet just published. The booklet presents the outstanding features of service, research and production in Carborundum's new plant at Wheatfield, N.Y.

Profusely illustrated, this booklet is like a visit to the plant. One may see how abrasive products are coated—how discs, sheets, rolls and belts are produced.

Copies may be had by writing The Carborundum Co., P.O. Box 337, Niagara Falls, N.Y..

Finishing Equipment Catalog

A new 60-page illustrated catalog of Finishing and Coating Equipment describes and illustrates modern setups for metal cleaning, spray-painting, roller coating, flow coating, dip coating, whirl finishing and baking in both gas-fired and electric ovens. Spray guns, spray booths, paint heaters, air compressors, air gauges, air filters, fans, respirators — in fact everything used in the finishing room—are included. For a free copy write Morrill & Renshaw, Inc., 624 N. Green Street, Chicago 22, Ill.

Portfolio on Steam Cleaning

The DuBois Co. is offering a portfolio on the subject of steam cleaning to aid industrial plants in obtaining the utmost efficiency in their steam cleaning operations.

The chemical requirements of a good steam cleaning compound are outlined, telling what to look for in selecting the material to be used and the kind of results to be expected. Safety to personnel, absence of disagreeable odors and fumes, safety on metals and equipment parts are stressed.

Other features are an instruction chart on the maintenance of steam cleaning equipment, and case histories describing the use of DuBois Sprex AC in steam cleaning operations.

This brochure can be obtained by writing the Industrial Division, The DuBois Co., Cincinnati 3, Ohio.

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Industrial FINISHING Editorial

Sales People Must Know Your Product's Merit

"All the workmanship, planning, research, designing, and genius which you devote to the manufacture of a product can be completely wasted if the story of your product and its implications for the consumer do not get across at the level of the retail salesperson," Lawrence F. Greenberger, director of retail training, Kaufmann's Department Stores, told a sales management conference recently in Cleveland, Ohio.

According to Dr. Greenberger, manufacturers of consumer goods must keep retail salespeople informed about their products so that pertinent information about product qualities and features may be passed on to the customer and *interpreted in terms of better service and better living.* "Many products have failed completely, simply because salespeople have not been properly informed," he said. "The importance of effective selling cannot be overemphasized; for when we stop selling, the consumer stops buying, and when the consumer stops buying, manufacturers of goods stop producing."

"The modern concept of the consumer and her shopping problems," according to Dr. Greenberger, "is in striking contrast to the old attitude toward selling. The major emphasis in retail training today in selling goods is selling service." Educating salespeople about the goods they sell is an important part of serving the consumer because intelligent selling helps the customer to buy intelligently and, frequently, to buy more.

"Today's definition of salesmanship," Dr. Greenberger told the Conference, " is simply helping customers to buy. Nine-five per cent of a wholesale buyer's functions have to do with managing the sales and the selling activity of the employees under his supervision. The whole emphasis in modern retail management is placed on intelligent supervision and good human relations, rather than on just getting the goods."—*Industrial News Service.*

Frequent Inspection; Fewer Rejects

A sufficient number of strategetically located inspection stations, with enough of the proper kind of lights, and manned by capable inspectors, is one of the biggest assets any industrial plant can have.

At any point in the production line where a piece or a part or the entire product becomes defective—in other words a reject—any additional time and material expended on it is pure loss. The further the rejects travel, whether by conveyor or hand truck, the greater the loss.

The more manual operations that are put on a product, the more frequent inspection is required. It is only where automatically controlled mechanical operations prevail that inspection can be reduced with safety.

If metal parts or products go through a metal surface washer where all solutions are titrated at regular intervals, then through a dry-off oven, then a dip tank, drain and bake oven, two inspections are all that are needed—one before the metal

items enter the washer and one before they are painted. On the other hand, if the metal products are hand sprayed, baked, wet sanded, dried, and this sequence repeated, several inspection stations will be needed because the more people that work on these products the more likely some of them may become rejects.

It will pay you to check the lights at every inspection station. There should be sufficient light directed so as to light up the entire surface with no glare. Inspectors, like any other operators, must be provided with proper tools and equipment.

Kitchens to Assume More Importance

At a recent meeting of the Home Fashion League in New York, Harvey Wiley Corbett, noted architect, predicted that the kitchen would be the most important room in the house of the immediate future. According to Mr. Corbett the kitchen will be located with the finest outlook, will have the largest windows and suitable appointments to entertain guests for cocktails before dinner. Emphasis will be placed on kitchen furnishings to make them both efficient and attractive, and the housewife will become an artist at the range, preparing the meal in full view of the guests much the same as the chef performs at special dinners in fine hotels and restaurants today.

At first thought this may sound a bit far fetched, but after a little consideration, Mr. Corbett may be partially if not entirely correct. Homes are becoming smaller and efficient and dependable domestic help is both scarce and costly. To entertain friends in an attractive, well appointed kitchen would save time, it would provide an oportunity for the cook to exhibit showmanship and adept-

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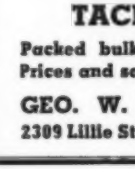

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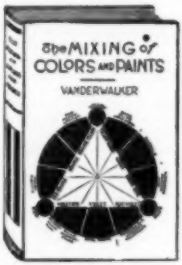

COLOR formulas and Useful Color Cards. Description, Properties, Theory, Harmony and Management of Colors. Furniture and Polychrome Finishing. Color and Light; Description of Color Pigments; Properties of Color Pigments; How Colors Are Prepared for the Trade; Basic Paint Pigments; Painting Oils; Volatile Thinners and Dryers; General Paint Mixing Methods; Color Theory, Principles and Use; Colored Paint Mixing, Methods; Mixing Special Purpose Materials; Color Harmony and Management; Selecting Color Schemes.

296 Pages, Fully Illustrated with Color Chart and Drawings, Cloth. Price..... **$2.50**

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ness, and the savory odors would whet the appetites of the guests.

Should this trend become popular, more color will creep into kitchen furnishings from stoves to spatulas and from mixers to muffin pans. Stainless steel, aluminum, chrome and copper may furnish contrasting tonal effects. In just a few short years old products, improved in style, design and operation with new colorful finishes, may make considerable change in our way of life.

Courtesy to Visitors Helps Goodwill

A business executive is generally chosen for his ability and special attributes. One of the latter is courtesy. The front line of a business is the receptionist, the person who greets all who visit the establishment, regardless of their mission or their importance. The receptionist's job is of greater importance than the telephone operator who answers calls, yet in some cases this person is wholly inadequate for the job. Some are self centered, indifferent and show little or no regard for the time a visitor wastes in waiting for whoever he has called to see.

Of course, close cooperation is required from all personnel in any organization that receives visitors. There is no sense in having the reception room cluttered with several visitors reading back issues of magazines while waiting to see someone in the establishment. If that individual is available he should see the visitor promptly. If he is too busy, or in a meeting, or out, this information should be given the visitor promptly, so that he may determine whether or not it is advisable to wait. If he decides to wait, it is up to the receptionist to check with the person wanted at about the time he may be available,

without waiting for the visitor to request this courtesy.

With an efficient automatic call and inter-communicating system, a capable receptionist can be an ambassador of goodwill for any company. The person who greets visitors is an outward sign of the inner workings of the company. Favorable impressions are more important than you think, even to the "unimportant" caller. After all, who is or who is not so important at the moment, or perhaps at some time later?

What Does the Customer Think of Your Product?

Have you ever had someone not attached to your organization give you an honest straight forward answer as to what he thinks of your product after it has been in use for six months to a year? Such an opinion may be enlightening as well as helpful. Those people who daily live with the product are often too close to it to really recognize its faults and shortcomings.

Too many manufacturers became accustomed to using substitute materials during the days of scarcities and seller's market that followed. Then the customer had no choice. Today he has. Then an excuse for short lived, poor working and even inferior parts and products could be found. Today there is none.

This thing of not having too much to say, of not finding fault may have become a habit when so many faulty products were the order of the day. As long as no better products were available the manufacturer had little to worry about; but when better products appeared, the customer quietly switched.

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NON-INFLAMMABLE
« *wax free* REMOVER »

for paint, varnish, lacquer, baked enamel, adhesives

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facturer to have some unbiased person or organization to analyze his product from the standpoints of design, appearance, functional merits and finish to learn where improvements can be made.

New Boss; New Job; Workmen; Results

★ It's an old saying that "A new broom sweeps clean". A new finishing foreman should consider what to sweep out and what to keep; and also what he is sweeping before he sweeps.

Changes of policy, personnel and procedure in the normal course of events are to be expected, but changing just to be changing is often over done and sometimes with loss of quality and production.

Proper training regarding quality is imperative. A new or inexperienced finisher should have thorough instruction as to his particular job. He should be shown the right way to do it and also how it looks if it is done wrong or haphazardly. Constant checking and instruction, if needed, will go a long way toward making a dependable and skillful workman. Encouragement is also needed to keep up each worker's morale.

Sometimes an employee should be replaced; it is possible for a person to be too long in one position. As a result he may become indolent, incompetent, arrogant and dishonest.

Often persons are miscast and their abilities could be used better elsewhere. Incompatability of personali-

---

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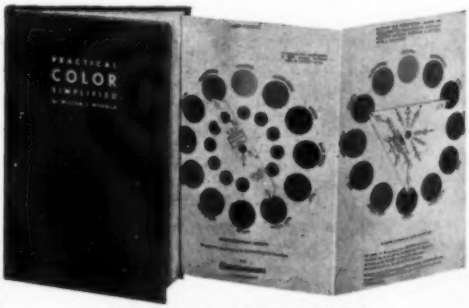

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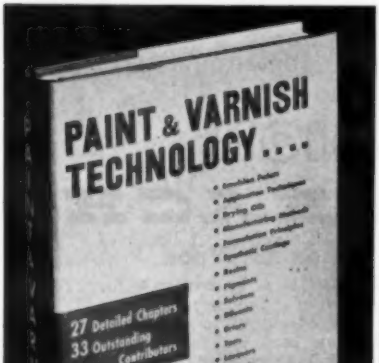

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ties and temperament often make it difficult for people to work well together. Where this occurs and there are clashes, morale drops and the work suffers. A piano maker kept this slogan posted in his factory where all could read: "If there is no harmony in the factory there can be none in the instrument". It applies in factories making other products too.

Under some circumstances, a new finishing foreman is justified in getting new men who can understand him and his methods. It is easy to see why a man who has responsibility placed upon him would want men around him who can do their job satisfactorily and work together congenially.

Managers of factories might be placed in two general classifications: One who only knows how to hire and fire. He comes in and cleans out everything that is movable and starts fresh, but still he has the same old results, problems and imperfections.

The other type of manager tries to help the men correct their faults and improve their efficiency; he also helps them to realize that they have a future. This fellow knows that time and money have been invested in every man in any position.

P.S. This article deals with things I have seen take place in actual experience. It not only applies to foremen but it applies to superintendents and managers as well.—F. BOYNTON.

Non-Inflammable Tack-Rag

A new 2-color folder, ready for distribution by Detro Mfg. & Sales Co., Inc., Culver City, Calif., reveals the uses and merits of the firm's product—Detroit Handy "Tac" Rag. Tack rags are used by finishers to wipe a surface perfectly clean of dust, lint or any foreign particles before painting, varnishing or lacquering same. According to Detro's folder, Detroit Handy Tac Rags remain soft and tacky (to pick up dust) indefinately and they are no fire hazard—are non-inflammable.

Education in Paint, Varnish and lacquer

★ Many paint technologists feel the need of occasional reviews of the theory and practice of paint making and paint using. The constantly increasing number of raw materials and techniques being developed make it necessary for users and evaluaters of paint to be constantly on the watch for new materials, new methods, and new testing devices which will enable them to do their jobs better.

Many of the large consumers of paints have laboratories set up for the control and evaluation of paint materials. These laboratories are staffed by chemists and engineers who have been trained by years of experience to choose the best available finish for their companies. It is fortunate that these technicians can attend courses at many universities in the United States and Canada to hear experts discuss the latest details in the theory and practice of paint chemistry.

University courses are usually given with the cooperation of the National Paint, Varnish & Lacquer Association, and the Federation of Paint & Varnish Production Clubs. This insures those attending that they will be instructed in the practical aspects as well as the academic phases of paint chemistry and engineering. Other courses are offered by manufacturers of paints, equipment, supplies, etc. Alert technicians will avail themselves of these opportunities to keep up near the front of this fast-moving parade.—M.A.G.

Flashlights that Glow in the Dark

Pratt & Lambert, Inc. (sales offices in New York, Buffalo and Chicago) present a novel use for their luminous paint which is applied on the new Winchester flash lights.

The finishing system consists of one coat of white primer, one coat of phosphorescent paint and one coat of clear finish, all of which are applied by automatic spray equipment. All coats are given a short bake at 250° F.

Products finished in luminous paint are attractive by day or incandescent light, and they glow in the dark.

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Bulletin About Ovens

A 4-page bulletin that illustrates and describes continuous conveyor type ovens for use in baking enamel coatings on metal, is announced by W. S. Rockwell Co., 200 Eliot St., Fairfield, Conn. These ovens have interlocked safety control of handling heating, temperature and circulation. They are designed, built, and installed by W. S. Rockwell Co.

The Best Finish to Use

By W. Beacham

"WHAT IS THE best finish to use?" is a question asked so many times a day that it becomes monotonous. One might ask, "How high is up?" Both questions can be answered but it is necessary to know all the conditions surrounding the question.

There is no one finish that is best under all conditions, for every base material. Conditions which must be taken into consideration are: Where and how is the painted product to be used, what conditions will it be subjected to, what is required in the way of flexibility, color, temperatures, durability, etc. Also, what type of base is the paint to be used on? What kind of metal or wood or plastic or fiber?

In most cases the chief reasons for using a coating of paint, varnish, or lacquer are to protect, preserve, and beautify the surfaces of a product.

If you are interested only in the appearance of the product until it is sold, one coat of finish enamel may be all that is needed; but within a short time the finish is likely to peel or crack; then your product is rated as being undesirable.

To prevent the finish coat from cracking or peeling, it is usually necessary to first apply a prime coat over a clean surface. The prime coat should be chosen to maintain excellen

adhesion to the base on which it is applied; then it becomes a satisfactory base for the finish coat. Contraction and expansion of the base material is then carried through the flexible prime coat, preventing cracks from appearing in the finish.

I would compare the prime coat to a piece of sponge rubber glued between a piece of cloth and a piece of paper. No matter how the cloth is stretched, the paper will not tear because the spring action of the sponge rubber will stretch at the bottom with cloth and lose its direct pull at the paper.

Paints are available to meet almost any condition, but don't try to use one paint for all conditions. Concentrate on the primer for a good finish coat. Ask your paint supplier if the primer you need for your particular job should dry by evaporation, oxidation, or polymerization.

Drying by evaporation: The protective resins are dissolved in a suitable solvent and, when applied to a surface, the rapid evaporation of the solvents leaves a protective resin coating with no chemical change in the film formation.

Oxidation: Many organic coatings absorb oxygen from the air; the oxygen burns the drying oils, leaving a hard flexible film.

Polymerization is a chemical change which involves the formation of inert molecules, and is usually accomplished by baking. These coatings, which include ureas, phenolics, and melamines in combination with alkyd resins, are among those having excellent adhesion, and are insoluble and extremely resistant to corrosion.

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Coatings consultant, PhD. equivalent, located in midwest, available on part-time basis. Wide experience in formulation, manufacture, and application of specialty coatings as well as metal cleaning and rust-proofing processes. Send me your problems. Address IF-651, care Industrial Finishing.

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One of America's finest quality bedroom furniture plants is considering applications of thoroughly qualified finishing room foremen for a permanent connection in a department of about 60 high-grade finishers, including decorators. Line includes color padded finish and paint and enamel decorated furniture. Only applications completely detailed with educational and work history will be considered. Qualified applicants will be personally interviewed at the plant located in Western Michigan. Address IF-652, care Industrial Finishing.

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